

*supporting marine and coastal
research in Flanders*



Annual Report 2010



FLANDERS MARINE INSTITUTE VLIZ



Including Collected Reprints 40 (2010)

Annual Report 2010

FLANDERS MARINE INSTITUTE VLIZ

*for everyone fascinated
by the sea and the coast*

www.vliz.be

Ostend, April 2011



with the support of:



Vlaamse overheid



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The Annual Report 2010 of the Flanders Marine Institute provides you with an overview of our activities in the past year. We deliberately keep this report easy to read with short texts, highlights, telling figures and eye-catchers, overview tables and numerous illustrations. You can find more detailed information on the performance of the different departments, the numerous internal and external projects, services, and information banks and databases on our website www.vliz.be.

The VLIZ website documents not just our own operation, it is also an important tool to disclose the scientific output of our network of 1,500 marine researchers. The mission of VLIZ is to make this versatile and high-quality marine and coastal research more widely known. Our core tasks include mapping this expertise and providing it to all interested people in Belgium and abroad. For this purpose we invest a great deal in the dissemination of research results and derivative data products through the Internet.

The Webometrics ranking (<http://research.webometrics.info>), which examines how scientific institutes all over the world use the Internet to make research results visible, shows that the output of Flemish marine sciences is indeed consulted in this manner. Time and again VLIZ appears to climb in this ranking and now takes first place in Belgium. We are the second highest ranked marine institute in Europe and we are in the top 150 worldwide. We can keep this up and improve this through the continuous and active support from our network: we therefore make a passionate appeal to you to continue your contribution to the Open Marine Archive and our numerous communication products, as well as the exchange of your information through our data centre.

2010 was a dynamic and productive year. The sweeping reform of the Scientific Committee was important for the future operation of VLIZ. A new structure, composition and modus operandi will ensure that an even greater and stronger network of marine scientists is involved in the operation of VLIZ.

Many of our activities fall within the scope of the International Year of Biodiversity. Yet it was primarily the Belgian presidency of the Council of the European Union which offered us the opportunity to give the seas and oceans, and the marine sciences in particular, the attention they deserve. The highlight was the EurOCEAN 2010 conference in Ostend, attended by over 400 marine experts from all European member states and far beyond. The conference dealt with the contribution which marine sciences can make in the future to sustainable management of the European seas and oceans. The closing statement, the “Ostend Declaration”, prioritises the needs as to marine research and expresses the willingness of the European research community to enthusiastically contribute to the major challenges and opportunities offered by the seas and oceans. The “Ostend Declaration” will certainly provide support and inspiration in the development of the marine sciences in Flanders and Europe for many years. VLIZ for one has the ambition to (continue to) make a significant contribution...

Enjoy the report!

Paul Breynne
Gouverneur of West Flanders
Chairman of the VLIZ

Jan Mees
Managing Director of VLIZ

VLIZ in figures

53,818

Number of downloads from OMA,
the Open Marine Archive

292

Number of sailing days within the
scope of marine scientific research

9,562 (28.4 Gb)

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

2,194

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

23

Number of formal cooperation
agreements

8,081,581

Number of hits on the Coastal &
Marine Wiki in 2010

31,982

Number of images in VLIZ photo galleries

5,433

Number of subscribers to the journal
'De Grote Rede'

207,000

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

4,125,751

Turnover of VLIZ (EUR)

VLIZ in a timeline

A selection of major events in 2010



© VLIZ

FEBRUARY

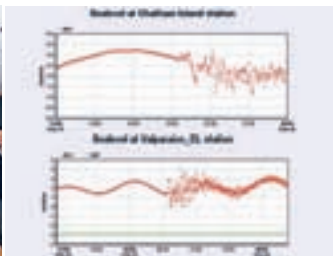
First workshop of experts in the history of sea fisheries in Belgium (04.02)



© VLIZ

FEBRUARY

EMODnet workshop on availability of biological data and data products (25-26.02)



© VLIZ

FEBRUARY

Quake and tsunami in Chile globally followed via the Sea Level Monitoring Facility (27.02)



© David

APRIL

2010 Planet Ocean expedition with winning class (25-30.04)



© VLIZ

JUNE

Scheldt estuary in the sight of European coastal protection project THESEUS (02-04.06)



© VLIZ

JUNE

Evening for the general public on the occasion of World Oceans Day (08.06)



© VLIZ

JUNE

Set of indicators to monitor Long-Term Vision and Target 2030 for the Scheldt estuary



© VLIZ

JULY

COREPER I visits InnovOcean site (14.07)



© VLIZ

AUGUST

Launch of ScheldeMonitor data portal: online access to wide range of Scheldt data



© VLIZ

SEPTEMBER

Launch of Belgian Register of Marine Species (BeRMS)



© VLIZ

OCTOBER

Prestigious European conference EuroOCEAN 2010 on the grand challenges in marine research, leading to the "Ostend Declaration" (12-13.10)



© VLIZ

NOVEMBER

Research vessel Zeeleeuw in the Port of Ghent for Science day (21.11)

UNESCO/IOC Project for IODE in figures

8

Number of organised training courses

155

Number of students

55

Number of nationalities
represented on the courses

182

Number of both short- and
longterm guest researchers

1,557

Number of nights spent by
trainees and experts

86

Number of dynamic websites hosted

13

Number of available servers

3,374

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' in 2010

UNESCO/IOC Project Office for IODE in a timeline

A selection of major events in 2010



© IODE

FEBRUARY

IODE Workshop on Quality Control/Quality Assurance of Chemical Oceanographic Data (08-11.02)



© IODE

MARCH

IMDIS 2010: International Conference on Marine Data and Information Systems (23-30.03)



© IODE

APRIL

DMCG-IV: Fourth Session of the JCOMM Data Management Coordination Group (08-09.04)



© IODE

APRIL

Celebrating 50 years of IOC with an international conference in Saint Petersburg (27-30.04)



© IODE

MAY

Third Joint GOSUD/SAMOS workshop and GTSP Annual Meeting (04-07.05)



© IODE

JUNE

Meeting on cooperation with EUMETSAT in Darmstadt (23.06)



© IODE

JULY

OceanTeacher Academy Course on Disaster Planning and Recovery for Marine Librarians (01-07.07)



© IODE

JULY

Visit of COREPER I to Project Office (14.07)



© IODE

SEPTEMBER

OceanTeacher Academy Course: Introduction to Marine Data for Young Scientists (06-10.09)



© IODE

OCTOBER

Visit of IOC Executive Secretary and secretariat to Project Office for IODE in Oostende (13.10)



© IODE

NOVEMBER

Meeting IODE Steering Group for OBIS (18-19.11)



© IODE

DECEMBER

2nd ODINAFRICA Project Steering Committee (06-08.12)

Core tasks and structure

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 Government 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 departments correspond to the main menu sections on the VLIZ website.

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



Achievements in 2010

an overview

Coordin



Coordination



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

- ❑ INNOVOCEAN SITE
- ❑ PERSONNEL POLICY
- ❑ NETWORKING
- ❑ COOPERATION AGREEMENTS
- ❑ MEMBERSHIP
- ❑ PROJECTS

Embedding of VLIZ by means of a decree

On 26 April 2010 the Flemish Council for Science and Innovation (VRWI) gave positive advice to the Flemish Government to add the Flanders Marine Institute (VLIZ) to the decree on the organisation and financing of the science and innovation policy areas in Flanders (dated 30 April 2009):

“... VLIZ acts as a centre for marine and coastal research and as a coordination and information platform for marine scientific research. VLIZ, a non-profit organisation under Belgian law, receives an annual subsidy from the Flemish Government. The specific assignments are reported on every year and evaluated every five years through a covenant. This institute enjoys an ever increasing international reputation and fame, as appears from the evaluation. The VRWI therefore thinks it is positive that VLIZ is embedded by means of a decree...”

The positive decision by the Flemish Government in this regard was published in the Belgian Official Journal of 28 July 2010. In Title III of this decree the relationship is embedded between the Flemish Government and a number of structural partners, such as the strategic research centres IMEC, VIB, IBBT and VITO, KVAB, FTI, Flanders DC and now VLIZ as well, within the scope of the scientific and innovation policy. This gives our institute greater legal certainty and enables us to conclude a new management agreement (covenant) with the Flemish Government.

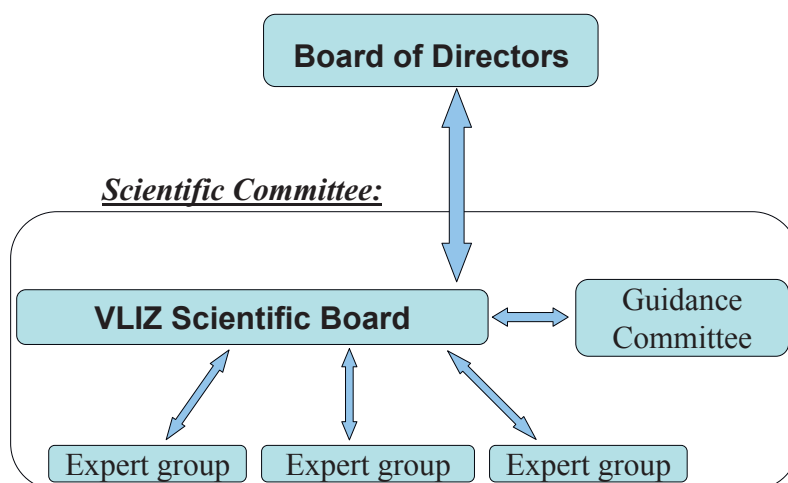
Scientific Committee reform

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

The VLIZ evaluation report (dated 24 November 2009) showed that a thorough revision of the structure and operation of the Scientific Committee was imperative (see 2009 Annual Report, p. 140-142: 9). In the spring of 2010 the Board of Directors drew up a memo (www.vliz.be/docs/wetcom/NotaHervormingWC2010.pdf) concerning the reform of this committee on the basis of the following principles: obtaining a greater commitment from members, better information flow to non-members, as well as creating a wider and stronger network around VLIZ.

New structure and operation of the Scientific Committee

Action was taken in 2010 to reorganise the Scientific Committee. It was given a new structure consisting of three interconnected and mutually reinforcing components: the VLIZ Scientific Board, the Guidance Committee and the Expert groups.



Inaugural meeting of the reorganised Scientific Board

The Scientific Board set to work for the first time on 22 October 2010. The annotated agenda, discussions and preparatory informative annexes are appreciated by all parties.



© VLIZ

At the open meeting on 25 June 2010 the existing Scientific Committee was dissolved and from then on it was given a new structure consisting of three interconnected and mutually reinforcing components: a Scientific Board, a Guidance Committee and various Expert groups.

The **VLIZ Scientific Board** is a compact steering committee that meets four times a year and reports to the Board of Directors. Its members are invited and appointed by the Board of Directors. Each member may assign one official substitute. The members and substitutes sign a declaration of commitment, loyalty and confidentiality. In it they also confirm to ensure the information flow within our organisation.

The composition of the Scientific Board (see text box) reflects the inter-university and multidisciplinary character of VLIZ. The Flemish scientific institutions with marine activities each have one representative. The Flemish universities each have one or two representatives, depending on the size of the university and their number of research groups active in a marine discipline.

Annotated agendas are used during the meetings, consisting of (1) an informative section, (2) discussion with regard to strategic matters and (3) the formulation of advice to the Board of Directors. Informative annexes are sent to the members in advance to prepare the meeting.

The **Scientific Board** is composed of 14 members.
Its constitution was adopted by the Board of Directors on 27.10.2010.

- The chairman is the vice-chair of the Board of Directors:
 - Colin Janssen
- Two delegates from Ghent University (UGent):
 - Magda Vincx (substitute: David Van Rooij)
 - Patrick Sorgeloos (substitute: Julien De Rouck)
- Two delegates from Katholieke Universiteit Leuven (KULeuven):
 - Filip Volckaert
 - Jaak Monbaliu
- One delegate from Vrije Universiteit Brussel (VUB):
 - Frank Dehairs (substitute: Marc Kochzius)
- One delegate from University of Antwerp (UA):
 - Patrick Meire (substitute: Gudrun De Boeck)
- One delegate from Hasselt University (UHasselt):
 - Tom Artois (substitute: Natalie Beenaerts)
- One delegate from the Institute for Agricultural and Fisheries Research (ILVO-Fisheries):
 - Kris Cooreman (substitute: Bart Sonck)
- One delegate from the Research Institute for Nature and Forest (INBO):
 - Jurgen Tack (substitute: Eric Stienen)
- One delegate from the Flemish Institute for Technological Research (VITO):
 - Roger Dijkmans (substitute: Bart Deronde)
- One delegate from the Flemish Environment Agency (VMM):
 - Steven Vinckier (substitute: Marleen Van Steertegem)
- One delegate from the Flemish Heritage Institute (VIOE):
 - Marnix Pieters (substitute: Tom Lenaerts)
- One delegate from the Flanders Hydraulics Research (WL):
 - Frank Mostaert (substitute: Toon Verwaest)

Attending the meetings:

- The director and a reporter of the Flanders Marine Institute (VLIZ):
 - Jan Mees, director
 - Jan Seys (substitute: Nancy Fockedey)
- A representative of the Department of Economy, Science and Innovation (EWI):
 - Rudy Herman

The **Guidance Committee** holds one plenary meeting a year in Ostend open to all marine scientists. A broad public from the IMIS database is invited (independent academic staff, postgraduates and executives). The agenda consists of going through last year's activity report and providing an overview of important new and planned activities, supplemented with presentations on a few current themes. The Guidance Committee will assemble for the first time in June 2011.

Expert groups may be established at the invitation of the Board of Directors or at the suggestion of the Scientific Board. These thematic study groups are composed of the most relevant experts from Belgium (Flemish, Walloon/French-speaking and federal institutions) and from abroad, depending on the theme. The Expert groups may have a limited or longer life span. The president of an expert panel reports directly to the Scientific Board. A VLIZ employee will provide support as secretary-reporter. Expert groups have a clear mandate ("term of references") and are officially part of the Scientific Committee. The Expert groups were not yet installed in 2010. However, a procedure has already been drawn up determining the nomination and selection.

Investment subsidy

As from 2008, VLIZ has received an additional investment subsidy of 1.1 million EUR from the Flemish Government, Department of Economy, Science and Innovation (EWI) (provided for by an addendum to the 2005-2009 management agreement). A sum of 500,000 EUR was set aside for funding the new research vessel 'Simon Stevin' in 2010 (and also during the coming years). In addition, the subsidy was also used in 2010 to purchase scientific equipment to be integrated in the hull of the new vessel, in particular an ADCP and a single-beam echo sounder (read more in the Facilities chapter).

Dive for Life: Polar bear plunge for a good cause



Together with various Flemish marine research institutes, VLIZ organised a polar bear plunge into the sea on 23 December. Our bravest staff members who took the plunge were sponsored by colleagues, friends and family. All of the proceeds were donated to Music For Life, which raised funds for AIDS orphans in Africa in 2010.

Staff

On 31 December 2010, VLIZ had a total of 42 staff members, who accounted for 36.62 full-time equivalents (FTEs). Half of them are permanent staff, the other half are temporary staff. The scientific employees account for 19.81 FTEs, while 16.80 FTEs are put into action for support activities (including 9.98 FTEs for administrative staff, 5.56 FTEs for IT workers and 1.26 FTEs for maintenance staff).

A characteristic of 2009-2010 is that many employees worked at VLIZ with a short-term contract. Biologists Daphnis De Pooter (01.08.2009-31.01.2010), Sophie D'hondt (01.09.2009-14.01.2010), Annelies Scholaert (15.09.2009-31.12.2010) and Zohra Bouchti (14.01.2010-31.12.2010) participated in different ongoing data centre projects for a few months. Biologist Michiel Smits worked at the VLIZ education division from 1 September 2009 to 31 August 2010. Through his research, historian Matthias Breyne (11.01.2010 – 31.08.2010) unravelled the story behind the first marine research station in Ostend (also see Figures & Policy). Wouter Rommens ceased to be a training coordinator at the Project Office for IODE (IOC-UNESCO) at the end of May 2010 and afterwards worked at the VLIZ communication department for a few months to assist in preparing the EurOCEAN 2010 conference (until 15.12.2010). IT specialist and developer Joram Declerck started working at VLIZ on 15.02.2010, replacing Marie-Line Villers, who set out on a journey around the world on 30 April 2010. Biologist Karen Rappé started on 1 September 2010 with the specific assignment to steer the communication tasks within the CLAMER project of the EU in the right direction.

Following the operational recommendations of the VLIZ evaluation (please refer to the 2009 Annual Report, p. 140-142: recommendations 1 and 5) a great deal of energy was invested in the professionalisation of the personnel policy and attention was paid to risk management in 2010. The smaller, more vulnerable departments of VLIZ were reinforced with an additional staff member in order to ensure the organisation's continuity and the provision of services. Librarian Jan Haspeslagh returned to Ostend (01.05.2010) after working at the library of Ghent University for a while. This way the VLIZ library's staff was enlarged to three persons, which allows to consolidate the information management. Geologist Hans Pirlet joined the department Figures & Policy on 01.10.2010. Meanwhile the additional position of marine technician has been created within the department Facilities.

Last year 9 students did a work placement. A total of 9 student employees worked at various departments of VLIZ in the summer of 2010. On 21 October 2010 VLIZ participated in 'Zuiddag'; on this occasion 7 students from the third cycle of secondary education worked in aid of a project in the South for a day.

Overview of VLIZ personnel at the end of December 2010

General operation, coordination and maintenance



Jan Mees

VLIZ managing director



Ingrid Dobbelaere

*administrative assistant
- contact & management
secretariat*



Nathalie Keersebilck

*administrative assistant
- projects*



Dominique Milh

*administrative assistant
- reception & general support*



An Vanhoorne

*administrative assistant
- financial & personnel
management*



Chedi Minkailova

*VLIZ & UNESCO
maintenance*



Angela Diaz

*VLIZ & Marine Board-ESF
maintenance*

Communication & Information



Jan Seys

*head of communication
department*



Evy Copejans

educational assistant



Nancy Fockedeey

scientific assistant



Karen Rappé

*scientific assistant
(from 01.09.10)*

Data Centre



Francisco (Tjess) Hernandez

data centre general manager



Ward Appeltans

project manager



Zohra Bouchti

*scientific assistant
(till 31.12.10)*



Simon Claus

scientific assistant



Nathalie De Hauwere

scientific assistant



Joram Declerck

*IT specialist & developer
(since 15.02.10)*



Wim Decock

scientific assistant



Klaas Deneudt

project manager



Elien Dewitte

scientific assistant



Annelies Goffin

scientific assistant



Liesbeth Lyssens

IT specialist & developer



Roeland T'Jampens

IT specialist & developer



Leen Vandepitte

scientific assistant



Ruth Vandepitte

*administrative assistant –
information & data*



Bart Vanhoorne

IT specialist & developer



Filip Waumans

IT specialist & developer

Facilities



André Cattrijsse

*manager research
infrastructure*



Michiel T'Jampens

marine technician

Library



Heike Lust

information manager



Chilekwa Chisala

assistant librarian



Jan Haspeslagh

librarian (since 01.05.10)

Figures & Policy



**Ann-Katrien
Lesrauwaet**

*head of the figures &
policy department*



Heidi Debergh

scientific assistant



Hans Pirlet

*scientific assistant
(since 01.10.10)*



Annelies Scholaert

*scientific assistant
(till 31.12.10)*

Scheldt Information Centre - Flanders



Bregje Beyst

manager SIC - Flanders

UNESCO/IOC Project Office for IODE



Kristin de Lichtervelde

administrative assistant



Annelies Groen

administrative assistant



Marc Van Crombrugge

IT specialist & developer

Marine Board-ESF



Dina Eparkhina

administrative assistant



Sara Behiels

project assistant

Trainees

Bart Bruyneels	Artesis Hogeschool Antwerpen	trainee education
Lien Canoot	Artesis Hogeschool Antwerpen	trainee education
Hannes De Blauwe	St-Jozefsinstituut Brugge	trainee data centre
Ellen De Sutter	Artesis Hogeschool Antwerpen	trainee education
Delphine Jarvis	St.-Vesalius Instituut Oostende	trainee facilities & education
Sophie Leguil	Université Libre de Bruxelles	trainee data centre
David Martens	Hogeschool Gent	trainee education
Yorick Standaert	Hogeschool Gent	trainee education
Nick Van Der Haeghen	Artesis Hogeschool Antwerpen	trainee education

Student employees

Elisabeth de Lichtervelde, Marieke Desender, Eline Haspeslagh, Simon Hernandez, Kristof Plovie, Daan Renders, Tineke Seys, Liesbeth Van De Moortel, Thomas Vannecke

Zuiddag 21 October 2010

Maya Danneels, Eline Hermans, Tilly Plovie, Astrid Smet, Hannelore Van Gool, Annelies Vandewaetere, Charlotte Vervaet

Zuiddag 2010

VLIZ takes part in a solidarity action in which students from the third cycle of secondary education work for one day in aid of a project in the South.



© VLIZ

World first from Ostend dusted off

In 1843 professor Pierre-Joseph van Beneden installed the world's very first marine research station in Ostend. On 25 June a commemorative plaque on the façade of the VLIZ building was officially unveiled by Guido Decorte, member of the Executive Council of West Flanders.



© VLIZ

Members and members' day

VLIZ is a membership organisation. At the end of 2010, VLIZ had a total of 245 members, including 175 individual members, 30 students, 30 institutional members and 10 honorary members.

Everyone who is interested in marine and coastal research can individually or collectively join as a supporting member. This membership includes a copy of the annual report and participation in the VLIZ members' day; subscription to '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 receipt of other VLIZ publications (special publications, books, posters...); subscription to the annual Zeekrant; discounts for congresses and seminars organised by VLIZ and special VLIZ publications; free access to the services of the multimedia centre and the data centre; and reduced rates for copies and prints of scientific posters.

VLIZ organised a **members' day** for the third time on 25 June 2010. It was primarily a networking event, intended to get acquainted with the other VLIZ members, VLIZ employees and the marine research community in a pleasant and stimulating setting. The programme of the 2010 members' day included the presentation of the new 2010 Zeekrant and the 2009 VLIZ Annual Report, the inauguration of the renovated marine library and a presentation on the fascinating history of marine sciences in Belgium. Guido Decorte, member of the Executive Council of the Province of West Flanders, had the honour of unveiling the new commemorative plaque at Wandelaarkaai. This informative plaque provides passers-by and visitors of the East Bank of Ostend with information on the first marine research station in the world (!), established in 1843 by Pierre-Joseph van Beneden (read more in the Figures & Policy chapter). Apparently this station once stood at less than 100 metres distance from the front door of the current VLIZ buildings, where the current channel is located. The participants also visited the renovated VLIZ library, where they got a fascinating guided tour of the collection. The day was concluded with a reception.

Cooperation agreements

Cooperation with national and international universities, research institutions and individual research groups is continuously enhanced by concluding cooperation agreements.

On 23 August 2010 a cooperation agreement was concluded with the **Ecosystem Management Research Group** (ECOBRE) of the University of Antwerp (UA) regarding data management for research on the effects of the Sigma plan, dredging activities and harbour extension on the environment of the Belgian part of the Scheldt Estuary (OMES project).

The mangrove reference database developed within the scope of the cooperation agreements with **Vrije Universiteit Brussel** (VUB) and **Université Libre de Bruxelles** (ULB) was made available online through the website www.vliz.be/vmdcdata/mangroves in 2010 (read more in the Data Centre chapter).

Last year a first implementation contract was completed within the scope of the renewed cooperation agreement with the **Research Institute for Nature and Forest** (INBO). The MDA and IMIS data and information systems of VLIZ were adapted in such a way that they can now be accessed and used by INBO as well. In addition, the Information department and the Data Centre of INBO made use of VLIZ's expertise to record and document data and information (read more in the Data Centre chapter).

Within the scope of the cooperation agreement with **ILVO-Fisheries**, the Fisheries Biology section was advised in 2010 to optimise their data management. The Environmental Monitoring section, with which VLIZ has already been collaborating for a long time, entered over 150,000 macrobenthos and epibenthos data into the database developed for this purpose by VLIZ. VLIZ also supports the Fisheries Biology and Environmental Monitoring sections in reporting ILVO data to national and international organisations (read more in the Data Centre chapter).

Within the scope of the cooperation agreement with **Phycology Section** (UGent), a working database for herbarium specimens was developed.

Together with the **Animal Ecology and Systematics Section** (KULeuven) and **INBO**, a database was worked out in 2009 and 2010 for long-term fish monitoring at the Doel nuclear power plant (since 1991).

VLIZ supported the **Marine Biology Section** (UGent) in the organisation of the International Meiofauna Conference (12-16 July 2010) by undertaking the compilation and printing of the book of abstracts as well as by gathering the entire bibliography of Prof Dr Carlo Heip for the tribute book in honour of his career.

Overview of the 23 national and international cooperation agreements (state of affairs at the end of 2010).

Since it was created, VLIZ has entered into a total of 23 (inter)national cooperation agreements with universities, research institutions and administrations. This number does not include the management agreements with the Flemish Government, Department of Economy, Science and Innovation (EWI) and with the Province of West Flanders.

BELGIAN 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 & Prof Dr F. Dahdouh-Guebas – mangroves
- Université Libre de Bruxelles, Prof Dr F. Dahdouh-Guebas – mangroves
- Universiteit Antwerpen, Prof Dr P. Meire – environmental effects in the Belgian part of the Scheldt estuary (OMES)

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 data
- Research Institute for Nature and Forest (INBO) – information exchange and data management with regard to marine and coastal research
- Flemish Environment Agency (VMM) – development and management of databases in connection with the monitoring of transitional and coastal waters
- The MUMM department of the RBINS – cooperation with regard to RV Zeeleeuw and RV Belgica

FLEMISH AUTHORITIES

- Policy domain Mobility and Public Works (MOW) – disclosure and exchange of scientific information and use of the measurement data of tidal systems
- Agency for Maritime Services & Coast, Coastal Division – redistribution of data from Monitoring Network Flemish Banks
- Agency for Maritime Services & Coast, Coastal Division – management of greenhouses for dune research in De Haan
- Agency for Maritime Services & Coast, Coastal Division – chairing of the Sluice Dock management committee, management of data and website
- Agency for Maritime Services & Coast, DAB Fleet – management of the Zeeleeuw research vessel
- Agency for Maritime Services & Coast, Coastal Division, and Research Institute for Nature and Forest (INBO) – monitoring of Flemish beaches

INTERNATIONAL RESEARCH INSTITUTIONS

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

Networks, committees and expertise

VLIZ is active in numerous **national and international networks**:

NATIONAL NETWORKS:

- VLIZ Scientific Committee
- editorial board and etymological expert team Grote Rede
- member of the Executive Committee and Consultative Group of the Coordination Centre on Integrated Coastal Zone Management (CDK)
- 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
- member of the Flemish Water Knowledge Center (VLAKWA)

INTERNATIONAL NETWORKS:

- member of the IODE data centre network (UNESCO/IOC) host of the UNESCO/IOC Project Office for IODE
- member of the Partnership for Observation of the Global Oceans (POGO)
- member of the POGO News & Information Group representative of the Research Foundation – Flanders in the Marine Board of the European Science Foundation (ESF)
- member of the Executive Committee of the Marine Board
- member of the Marine Board Communications Panel (MBCP)
- member of the European Centre for Information on Marine Science and Technology (EurOcean)
- member of the European Network of Marine Research Institutes and Stations (MARS)
- member of the European Research Vessel Organisation (ERVO)
- member of the European Federation of Marine Science and Technology Societies (EFMS)
- member of the European Association of Aquatic Sciences Libraries and Information Centres (EURASLIC)
- member of the International Association of Aquatic and Marine Sciences Libraries and Information Centres (IAMSLIC)
- member of the National Marine Educators Association (NMEA) 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 employees furthermore participate in various **advisory and consultative committees**, such as the Flanders Bays steering committee, the East Bank of Ostend steering committee, the Coastal Consultation and the Flood Team of the Province of West Flanders, the Local Group of Axis 4 of the Belgian Operational Programme for the Fisheries Industry, and the Occupational Fields advisory committee of Hogeschool Zeeland, in guidance groups and end-user committees of several research projects, and in several award, competition and doctoral juries.

VLIZ presentations & guided tours of the InnovOcean site

VLIZ organises visits to the InnovOcean site in Ostend for numerous organisations, associations and societies from Belgium and abroad. This way people can become acquainted with the activities of the institutions located here. This opportunity is also taken to make Flemish marine and coastal research more widely known through presentations and/or classes on the sea and coast. The latter is often done by VLIZ employees on location.

In 2010 various VLIZ employees gave a total of some 45 lectures, guided tours, presentations and classes. This way we reached over 2,000 people.

We provided explanation as to our operation and the Flemish marine sciences to groups of students and researchers from universities in Belgium and abroad (Escuela Superior Politécnica del Litoral from Guayaquil in Ecuador, Laâyoune Technical Institute from Morocco, Norwegian University of Science & Technology, students from Erasmus Mundus in Marine Biodiversity and Conservation), pupils (Virgo Sapientae Instituut from Maldegem, Collège Technique St-Joseph from Comines, and members of the European Youth Parliament from Croatia) and numerous associations (e.g. Natuurpunt, the Lange Nelle guide association, OKRA, Athena, Willemsfonds, NEOS, Association of Flemish Academics, and Flemish and Dutch associations of science communicators). Also worth mentioning is the story-telling night on the history of marine sciences, which took place in the fish market canteen (East Bank of Ostend). In 2010 classes were given within the scope of the nature guide course of the Centre for Nature and Environmental Education, the 'Zee-op-de-Korrel' course for nature guides and sea-entertainers within the scope of the Week of the Sea of the Province of West Flanders, and there was a class on science communication for the MSc in Biology of UGent and for the EMODnet project partners. We contributed to several seminars by the non-profit organisation 'Uitstraling Permanente Vorming' and the basic course on marine data collection and processing by the IODE OceanTeacher Academy.

A guided tour of the InnovOcean site was organised for the permanent representatives of the COREPER I committee, the 25 foreign ambassadors and their staff who visited the Province of West Flanders, employees of the Indonesian embassy, the Australian Policy Institute, North Sea Foundation, Nausicaâ from Boulogne-sur-Mer and the World Ocean Network.

VLIZ Tour of Flanders

We want to exchange information on all our activities and proactively stimulate possible collaborations by means of visits of a VLIZ delegation to research groups and administrations in Flanders and the wider region within the scope of the 'VLIZ Tour of Flanders'. We try to detect the expectations and needs of the visited group. We subsequently investigate what services VLIZ specifically needs to develop with regard to this group. The opportunity is taken to update the IMIS information database as far as staff, publications, projects and data sets are concerned. This activity was put on the back burner in 2010 and we had contact with two research groups and/or administrations.

Date	Name of research group/administration/organisation
17.06.2010	Flemish Heritage Institute (VIOE) - headquarters Brussel
17.09.2010	Vrije Universiteit Brussel – Biology Department (Marc Kochzius)*

* Visit at VLIZ

POGO

The world-wide oceanographic community, associated in the Partnership for the Observation of the Global Oceans (POGO) – in which VLIZ represents Belgium – and the 'Oceans United' organisation, advocated more systematic monitoring of the condition of our oceans throughout the world at the meeting of the international Group on Earth Observations (GEO) and the subsequent ministerial summit (3-5 November 2010 in Beijing). The rapid development of digital technology makes this indeed possible. Such world-wide 'camera supervision' of our oceans easily requires an investment of approximately 10 billion, and the annual implementation costs amount to approximately 3-4 billion. However, this money would be invested well according to the oceanographic world community, who made their arguments for this known on 31 October 2010 in an extensive English-language press release (www.vliz.be/pers/docs/POGO-2010.11.01.pdf). VLIZ takes care of the local dissemination of this message.

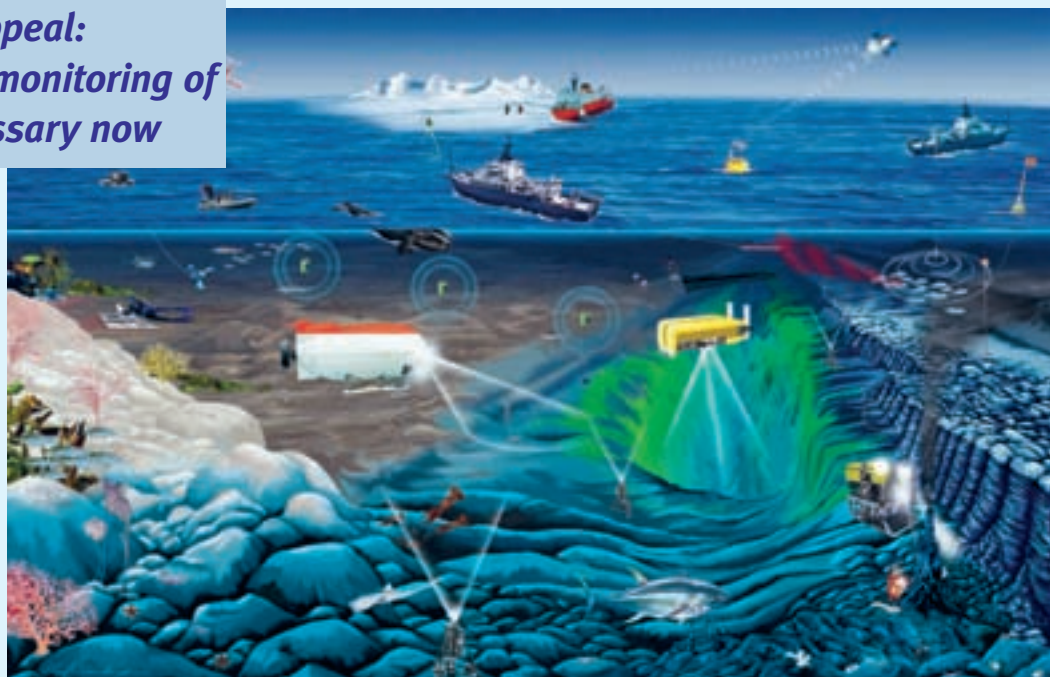
Intergovernmental Oceanographic Commission – IOC

UNESCO's Intergovernmental Oceanographic Commission (IOC) has been active in oceans and seas all over the world since 1960. On 8 June 2010 – during the celebration of its birthday – the IOC released a message on behalf of the oceans. The appeal is aimed at all peoples and nations of the world. It is a plea for managing oceans with care and giving them the attention they deserve. Marine scientists are specifically asked to be sure to continue gathering and interpreting information on the sea, inform the public and policy makers on the results of their studies and maintain a multidisciplinary community of colleagues. VLIZ took care of the Dutch translation of the appeal and the local dissemination of the message.



***POGO makes an appeal:
continuous global monitoring of
the oceans is necessary now***

*VLIZ helps to locally
disseminate the press release
issued by POGO on 31
October 2010 on the occasion
of the GEO Plenary Meeting
and the Ministerial Summit
from 3 to 5 November 2010
in Beijing.*



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A Message to the Peoples and Nations of the World On Behalf of the Ocean

(On the occasion of the 50th anniversary of UNESCO/IOC on June 8, 2010)

For generations the ocean has been regarded as massive, impenetrable and invulnerable. This is a false concept that can no longer be accepted with impunity. Relatively it is not massive, together with the land surface and atmosphere it forms only a thin skin between the thousands of kilometres of rock and magma beneath and the infinity of space above. It is a planetary meniscus on which our present environment and our lives depend. Secondly it is no longer impenetrable; today a growing fraction of our mineral resources comes from beneath the sea floor. Our automated instruments are scattered in the ocean waters across the globe. Researchers are now reaching into the depths, and uncovering some of its secrets, although results suggest that these are merely harbingers of what is still unknown. Finally the ocean is not invulnerable. The wastes of our society, flowing from the land, and through the atmosphere, from agriculture, industry and a growing urban population can be seen in the fragile coastal waters and measured even in the centre of the water masses.

However, the context for this message to the world should not be one of doom. Thankfully our ocean is still vital; its life, beauty and power still amaze us. We can, and should, celebrate and recognize the importance of the ocean to the culture, economy and well-being of our society. But the ocean does deserve our attention. As a society we must collectively and unambiguously acknowledge the importance of the oceans to our existence on the planet. The ocean cleanses the air we breathe; it influences our weather, climate, and the water on which we depend. We must be aware of the changes we bring to the ocean and the consequences of our actions. For this we require information and the knowledge, insight and determination to use that information collectively and wisely.

We have a responsibility to our children, their children and their children's children. Our legacy must be a sustainable and healthy environment. It is a responsibility that transcends national, political and social differences. As one, we are the people of the Earth and we must act together to protect and perpetuate the environment on which we depend.

The attached call on behalf of the ocean is a plea to all for an adequate and responsive recognition of the importance of the ocean.

*"...I must go down to the seas again/for the call of the running tide
Is a wild call and a clear call that may not be denied...."*
John Masfield (1878 – 1967)

The Ocean Call

(On the occasion of the 50th anniversary of UNESCO/IOC on June 8, 2010)

To the **peoples of the world**, we ask for recognition that the oceans and their resources are a necessary element of life on the planet. We also ask that you respect the ocean and understand that actions and activities even deep within continents can impact the marine environment. Governmental responses can be ponderous but ultimately they must reflect the will and priorities of their constituencies. The ocean deserves your support.

To those who finance and undertake **capacity building programs**, we ask that increased priority be given to programs in coastal and ocean management, ocean sciences and ocean technologies in order to provide safe, healthy and sustainable environments and reduce poverty through the promotion of effective and efficient marine stewardship.

To the **scientists** in all ocean disciplines, we ask that you continue your dedication to gather and interpret marine data, to inform the public and decision-makers of the results of your studies and to maintain a collegiate and multidisciplinary community.

To the extensive framework of **learned professionals and environmental lobbyists** in academia, industry, politics and law and to all those who have achieved leading positions and authoritative voices in our society, we ask that you will use your position and influence to further the support and attention needed to sustain and preserve our ocean environment.

To the **media**, whose role it is to inform our largely terrestrial society of the news and events of interest and importance, we ask that you recognise the ocean as an integral part of our environment and of our society. From tourism to trade, from energy to food, from high finance to indigenous fisheries and from megacities to mangrove habitats, there is a story with an ocean connection that needs telling.

To **governments**, we ask that you address the present deficiencies in the support of the marine environment. Nationally, to ensure that ocean research is adequately funded, that the infrastructure to distribute ocean information is in place, that sustainable marine management practices are fostered and that terrestrial and atmospheric policies take account of potential impacts on the ocean. Internationally, we ask you to adopt as a premise that sustaining the global environment remains the ultimate priority and that national differences must be overcome in working collectively for the future.

To the **youth**, we make the final and perhaps the most important request. We ask that you listen and learn, that you profit from the advances that we have achieved and avoid the mistakes that we have committed. You are the future. The ocean needs your enthusiasm, creativity and ability as scientists, managers, lawyers and politicians to champion its cause and to sustain its splendour and resources for generations to come..

Marine Board – European Science Foundation

The secretariat of the Marine Board, located at the InnovOcean site in Ostend, organised numerous meetings and received a number of special guests at its offices in 2010:



Formal meetings and events in 2010

03-04.04.2010	Marine Board Navigating the Future IV Brainstorming Workshop
29-30.06.2010	EU FP7 EMAR ² RES Workshops, Series 1
06-07.07.2010	EU FP7 CLAMER Workshops, Series
11.10.2010	EU FP7 Deep Sea & Sub-Sea-floor Frontier (DS ₃ F) Steering
14.10.2010	Marine Board Autumn 2010 Plenary Meeting
03-04.11.2010	EU FP7 EMAR ² RES

Formal visits in 2010

03.02.2010	Stephane Berghmans, Head of Medical Sciences Unit, European Science Foundation (ESF)
24.02.2010	Jan-Stephan Fritz, Head of Brussels Office, German Marine Research Consortium (KDM), Germany
14.07.2010	COREPER I
21.09.2010	David Murphy, Manager Aqua TT, Ireland
26.10.2010	Anthony Bergin, Director of Research Programmes, Australian Strategic Policy Institute, Australia

Marine Board Autumn 2010 Plenary Meeting in Ostend



On 14 October 2010 we welcomed some 30 Marine Board delegates for their autumn meeting in the offices at Wandelaarkaai.

Marine Board combines the vision of European marine scientists

The Marine Board offers a Pan-European platform to its member organisations to develop common priorities, promote marine research and close the gap between science and policy. All this is done with a view to future challenges and opportunities for marine sciences.



The five-man team led by Niall McDonough also ensured the co-organisation of the scientific summit “Marine Biotechnology: Future Challenges” in Italy (20-25 June), the second Marine Board Forum “Towards a European Network of Marine Observatories for Monitoring and Research” in Brussels (16 September) and the first European Marine and Maritime S&T Partnership Open Forum in Brussels (25 November). Together with VLIZ, EWI, MUMM, Belspo and EU-DG Research, the Marine Board organised the prestigious EurOCEAN 2010 conference in Ostend on 12 and 13 October, preceded by a pre-event in the European Parliament on 11 October. This fitted in with Belgium’s presidency of the Council of the European Union in the second half of 2010 (see below).

The Marine Board Autumn 2010 Plenary Meeting took place in Ostend on 14 October. Some 30 Marine Board delegates gathered in the offices at Wandelaarkaai to determine common priorities and to reach agreement on the activities and output of the Marine Board, which may influence European and national marine research and research policy agendas.

In 2010 the Marine Board published a vision document on marine renewable energy and two position papers with an overview of the status of research and grand challenges for the future concerning (1) marine biotechnology and (2) the ecosystem approach of biological marine resources (all of which can be downloaded from www.esf.org/research-areas/marine-sciences/marine-board-publications.html).

In addition, the Marine Board coordinated the common vision of European marine scientists with regard to the new European integrated maritime policy (<https://web-gate.ec.europa.eu/maritimeforum/node/950>). Apart from that, there was the Marine Board statement “Towards a European Network of Marine Observatories” as output of the 2nd Marine Board Forum (www.esf.org/marineboard/2ndforum) and the “Ostend Declaration” as a result of the EurOCEAN 2010 conference (see p.40-41).

EuroOCEAN 2010 pre-event in the European Parliament

On the eve of the EuroOCEAN 2010 conference (11 October), marine top scientists told members of the European Parliament that the development of research and technology in the seas and oceans is one of the grand challenges for the 21st century.



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VLIZ general manager Jan Mees represents the Research Foundation – Flanders within the Marine Board and acts as vice-chair within the Executive Committee. Jan Seys (VLIZ Manager Communication & Information) is chairman of the Marine Board Communications Panel (MBCP), which met in Southampton on 29 and 30 March 2010. The panel's main objective is to assist members in the promotion of and communication on marine sciences in Europe and the exchange of best practices regarding events and communication techniques.

Further information on the Marine Board can be found on its website www.esf.org/marineboard or in its new concise brochure (www.esf.org/?id=1437).

EuroOCEAN 2010 Conference

Since Europe is a maritime continent that derives a great deal of social advantages from its seas and the oceans, a comprehensive policy has been developed recently to consolidate and reinforce sustainable use of its marine waters. Take, for instance, the “Integrated Maritime Policy” and its environmental pillar, the “Marine Strategy Framework Directive”.

During the EuroOCEAN 2010 Conference at Thermae Palace in Ostend (12-13 October 2010) Europe's marine scientific experts and policy makers met to discuss these new policy developments. It was made clear that Europe will have to invest heavily in more marine research and technology developments to support this policy. During the conference the major challenges and opportunities for marine research and technology developments in the future were examined. In the “**Ostend Declaration**”, the closing statement of the EuroOCEAN 2010 Conference, the attendant marine scientists and policy makers indicated the priorities for the next decade (see unabridged version on p 40-41).

Considerable Flemish contribution to better policy-supporting marine research

Flemish minister of Economy, Science and Innovation Ingrid Lieten announced at the start of the EurOCEAN 2010 Conference that she would fully support the “Ostend Declaration”. She gave an overview of the current and future Flemish contribution to marine policy and research in Flanders, Europe and the world.



“Ostend Declaration” appeals to Europe for a blue future

To support the new European maritime policy effectively, Europe will need to invest more in marine research and technology. The “Ostend Declaration” outlines the basic ideas to be followed of the research needs for the next decade. European Commissioner for Research, Innovation and Science Máire Geoghegan-Quinn (middle) accepts the declaration.



Marine research and policy exhibition at EuroOCEAN 2010

At EuroOCEAN 2010, the Marine Board organised a real marine research and policy exhibition, where 43 organisations presented their activities to the 425 conference participants, ranging from intergovernmental organisations, pan-European networks and EU projects to national research institutes. VLIZ was also given a platform.



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VLIZ and the Marine Board developed a series of posters and a summary brochure which explain the ten grand challenges and priorities for marine research in the next decade in more detail.

The EuroOCEAN 2010 website developed by VLIZ (www.euroocean2010.eu) allows you to consult all speeches (including the ones by EU commissioners Geoghegan-Quinn and Damanaki and by Flemish minister Lieten), quotes and presentations by top scientists. The “Ostend Declaration” (in 22 translations) and many other downloads (programme, brochure, photographs ...) are available in this manner too.

The EuroOCEAN 2010 Conference was organised within the scope of Belgium’s presidency of the Council of the European Union by Marine Board-ESF and VLIZ, with funding from the department of Economy, Science and Innovation (EWI) of the Flemish Government, the Belgian Science Policy (Belspo) and DG Research of the European Committee.

OSTEND DECLARATION

The European marine and maritime research community stands ready to provide knowledge, services and support to the European Union and its Member and Associated States, recognising that

“The Seas and Oceans are one of the Grand Challenges for the 21st Century”.

In doing so, we acknowledge:

- the critical role of the oceans in the earth and climate systems;
- the importance of coasts, seas and oceans and their ecosystems to our health and well-being;
- the increasing impacts of global environmental change on the marine environment and the significant socio-economic consequences of those impacts;
- the ongoing need for basic research to address major gaps in our fundamental knowledge of coasts, seas and oceans;
- the enormous opportunities for innovation, sustained wealth and job creation in new and existing maritime sectors such as aquaculture, renewable energy, marine biotechnology and maritime transport; and
- the need to translate these messages to all sectors of society.

Furthermore, we underline **the crucial role of marine and maritime science and technology** in providing knowledge and understanding of the seas and oceans and their biodiversity, and in creating new opportunities and technologies which will support and progress:

- Job creation through smart, sustainable and inclusive growth (Europe 2020);
- Implementation of the Integrated Maritime Policy for the European Union (2007), the European Research Area (EC Green Paper on ERA, 2007) and other policies such as the Common Fisheries Policy;
- Good Environmental Status in our marine waters by 2020 (Marine Strategy Framework Directive); and
- Related grand challenges including food, energy and health, as identified in the Lund Declaration (2009).

The marine and maritime research community recognises that significant progress has been made in response to the Galway (2004) and Aberdeen (2007) Declarations, evidenced in the adoption of the Integrated Maritime Policy for Europe (2007), its environmental pillar the Marine Strategy Framework Directive (2008) and the European Strategy for Marine and Maritime Research (2008), and commits to building future progress within this comprehensive policy framework.

Addressing the Seas and Oceans Grand Challenge

The EuroOCEAN 2010 Conference identified priority marine and maritime research challenges and opportunities in areas such as food, global environmental change, energy, marine biotechnology, maritime transport and marine spatial planning, including seabed mapping. The Conference delivered an unequivocal message on the societal and economic benefits Europe derives from the seas and oceans and of the crucial role that research and technology must play in addressing the Seas and Oceans Grand Challenge.

The European marine science and technology community, building on existing achievements and initiatives, is ready to address this challenge in partnership with industry and the public sector, and calls upon the European Union and its Member and Associated States to facilitate this response by delivering the following proactive and integrating actions:

- 1. Joint Programming**
Develop an integrating framework, combining the assets of European programmes with those of Member States, to address the Grand Challenge of the Seas and Oceans, including the identification and delivery of critical marine research infrastructures. The **Joint Programming Initiative on “Healthy and Productive Seas and Oceans”** has the appropriate scale of integration and should be actively supported by the European Commission and Member States.
- 2. European Ocean Observing System**
Support the development of a truly integrated and sustainably funded **“European Ocean Observing System”** to (i) re-establish Europe’s global leading role in marine science and technology; (ii) respond to societal needs by supporting major policy initiatives such as the **Integrated Maritime Policy** and the **Marine Strategy Framework Directive**; and (iii) support European contributions to global observing systems. This could be achieved through better coordination of national capabilities with appropriate new investments, in coordination with relevant initiatives (e.g. ESFRI, EMODNET, GMES) and the engagement of end-users.
- 3. Research to Knowledge**
Establish appropriate mechanisms to keep under review current marine and maritime research programmes and projects with a view to enhancing their impact by (i) exploiting the results of this research; and (ii) identifying existing and emerging gaps. This should be supported by a **repository for the reports and findings of national and EU marine and maritime research projects, programmes and initiatives**, with capacity for archiving, translating, analysing, reporting and developing integrated knowledge products to facilitate policy development, decision making, management actions, innovation, education and public awareness.

To address effectively the Seas and Oceans Grand Challenge, it is essential to prioritise initiatives and programmes to enhance:

- **Innovation**

Provide enhanced support for innovation and the commercialisation of new marine/maritime products, processes, services and concepts in support of the Innovation Union and the Europe 2020 Strategy;

Promote actions to raise awareness within the marine scientific community of the innovation potential of marine science, and opportunities to make use of it in cooperation with ocean industries.

- **Training and Career Development**

Establish appropriate training and mobility opportunities for marine researchers and technologists and provide stable and attractive career pathways to ensure the highly skilled workforce that will be needed to support expanding marine and maritime sectors;

- **International Cooperation**

Establish at EU level a mechanism to strategically enhance international cooperation (i.e. between European consortia and third country partners) in science and technology, with support for networking initiatives, preparatory phase projects and concrete actions;

Strengthen bilateral/multilateral cooperation with key funding organisations, intergovernmental bodies and marine/maritime science institutions outside Europe to overcome barriers to, and deliver workable solutions for, joint funding of relevant international research programmes and infrastructures.

The European marine and maritime science community is committed to playing its role, in partnership with industry and the public sector, to bridge the gap between science and innovation to support sustainable development.



THE OCEAN, IT'S IN YOUR HANDS

70% of our planet. A largely undiscovered wealth, a major driver of our climate... Worth a closer look!

EuroOCEAN 2010 CONFERENCE
Grand Challenges for Marine Research
in the next decade

Thermae Palace, Ostend
12 & 13/10/2010

www.euroocean2010.eu



EDUCATION AND OUTREACH REINFORCING GENERAL KNOWLEDGE AND EXPERTISE ON THE SEAS IN EUROPE

"It is a major challenge to bring marine science to the public due to the fact that the underwater world is difficult to experience and communicate."

Europe today

- ❖ The closer people live to the coast, the more literate about seas and oceans they are^[1].
- ❖ Most people associate the sea primarily with tourism and recreation and are unaware of other numerous goods and services provided by the sea^[1].
- ❖ Marine science, as well as maritime activities, development and growth are restricted due to limited availability of interested students, trained scientists and staff, etc.^[2].

Europe tomorrow

- ❖ Marine research and technology could be a critical driver towards:
 - ❖ Improving marine science education in curricula inspired by successful experience^[3];
 - ❖ Increasing ocean literacy, and raising the awareness of the public at large;
 - ❖ Turning vocations into qualifications of the highest standards for marine scientists and maritime professionals.



[1] Ocean Literacy survey in Flanders/Belgium - Tom Haverly, van Goyck & De Haan, 2009.
[2] Ocean Literacy (Education at Sea - Education for the Sea) Conference, Ostend, Belgium, 12-13/10/2010.
[3] The National Marine Education Association (NMEA) - www.nmeha-educ.org

EuroOCEAN 2010 poster series - Education and Outreach



MARINE ECOSYSTEM FUNCTIONING TRANSLATING FUNDAMENTAL KNOWLEDGE FOR THE SUSTAINABLE MANAGEMENT OF THE SEAS

"An improved understanding of ecosystem dynamics and functioning is critical to predict and manage the consequences of environmental change and human impact."

Europe today

- ❖ It is estimated that less than 5% of all marine species are known to science^[1].
- ❖ Marine microbial communities account for a substantial part of the primary production (base of the food chain) in the marine environment and represent more than 90% of the marine biomass.
- ❖ Marine microorganisms play a critical role in regulating the cycle of carbon and nutrients in the sea, yet almost nothing is known about their biodiversity and variability over space and time^[2].
- ❖ Marine ecosystems in Europe are increasingly influenced by human activity. In the Mediterranean Sea more than 400 invasive species have been introduced in the past 100 years with potentially significant impacts on marine ecosystems^[3].

Europe tomorrow

- ❖ Marine research and technology could be a critical driver towards:
 - ❖ A deeper understanding of the functioning of marine ecosystems and the influence of human impact and environmental change;
 - ❖ Greater knowledge of marine microbial species and communities, their role in ecosystem functioning and biogeochemical cycling, and other critical goods and services they provide;
 - ❖ New modeling approaches through integration of traditionally distinct models for examples ocean circulation, CO₂, chemistry and fish;
 - ❖ The implementation of an ecosystem approach to management of human activities in the marine environment, and the implementation of the Marine Strategy Framework Directive and the achievement of Good Environmental Status in all European marine waters by 2020.



[1] Census of Marine Life (CML) - <http://cml.cees.nl/>
[2] Marine Microbial Ecosystems (MME) - <http://www.mme-eu.org/>
[3] Buisson, B. (2004). Overview of Invasive Alien Species in European Seas and adjacent waters. *Marine Policy*, 28, 200-210.

EuroOCEAN 2010 poster series - Marine Ecosystem Functioning





FOOD TOWARDS A SUSTAINABLE HARVEST FROM THE SEAS

"Scientific knowledge, advice and innovation are critical for the future sustainability of fisheries and aquaculture in Europe, supporting jobs, protecting coastal communities and providing safe and healthy seafood products."

Europe today

- Europe is a major consumer (22 kg/ person/year) and a world's top three importer of fishery and aquaculture products.
- In terms of value, the annual output of the European fish processing industry is €23 billion, or three times that of the catch sector^[1].
- The EU aquaculture industry produced 1.3 million tonnes of fish, shellfish and crustaceans in 2006, generating a turnover of €3.2 billion and supporting 65,000 jobs^[2].
- Globally, marine and inland aquaculture production is fast catching up with fisheries, representing 47% of food-fish output in 2006^[3]. EU aquaculture production, however, is static.
- Science programmes are beginning to focus on the significant opportunities for discovery and extraction from marine organisms of food and functional food ingredients for human consumption and animal feeds.



[1] Facts and Figures on the Common Fisheries Policy - Basic Statistical Data (2010) European Commission Directorate-General for Fisheries and Aquaculture, 2010. [2] The European Aquaculture Industry - A New Impetus for the Strategy for the Sustainable Development of Fisheries and Aquaculture (2007) Commission of the European Communities and the Council (2007), 162-164.

[3] The state of world fisheries and aquaculture - 2008 (2009), Food and Agriculture Organization (FAO) (2009), 168-169.



EurOCEAN 2010 poster series - Food



OCEANS AND HUMAN HEALTH RISKS AND REMEDIES FOR HUMAN HEALTH AND WELL-BEING

"Life on earth is fundamentally and inextricably linked to the oceans. Oceanic processes affect climate, influence the spread of pathogens and determine food and material resource upon which we depend. How we use the sea can influence those processes to our benefit or detriment."

John Sheehan, Director, Woods Hole Center for Oceans and Human Health (WHOI)

Europe today

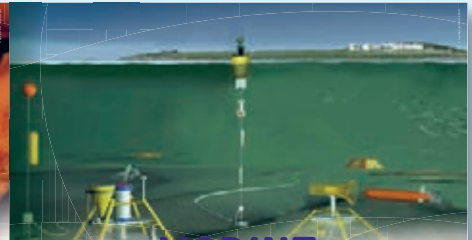
- Harmful Algal Bloom (HAB) events have increased over the past decades along the European coasts, leading to an increase of related diseases and economic losses in the fisheries and aquaculture sector^[1] with a total cost estimated at €64 million/year in the U.S. and more than €627 million/year in the EU^[2].
- More than 100,000 chemicals are currently on the EU market, some of which eventually end up in the marine environment as micro-pollutants. The effects of this chemical cocktail on the marine ecosystem and human health remain largely unknown^[3].
- Around 15 natural products from marine organisms are currently in clinical development for novel drugs (mainly for treatment of cancers) with several already on the market^[4]. The oceans and seas – although hardly explored – have a high potential for discoveries of bioactive compounds, given the rich marine biodiversity^[5].
- Seafood is an important component of a healthy balanced diet, e.g. providing a vital source of omega-3 fatty acids.



[1] Gilbert, P.H., Anderson, D.M., Swann, R. (2007), & K. (2007). The global impact of harmful algal blooms. Oceanography 18(2), 182-191. [2] World Health Organization (WHO) (2004). The state of the world's fisheries and aquaculture. [3] World Health Organization (WHO) (2004). The state of the world's fisheries and aquaculture. [4] World Health Organization (WHO) (2004). The state of the world's fisheries and aquaculture. [5] World Health Organization (WHO) (2004). The state of the world's fisheries and aquaculture.

Europe tomorrow

- Marine research and technology could be a critical driver towards:
 - The reduction of the health risks and identification of new resources and benefits from the oceans and seas;
 - This would require an integrated approach combining disciplines as disparate as physical oceanography, chemistry, genomics, epidemiology and social science and focus inter alia on:
 - Better identification and prediction of the occurrence, distributions, toxicity and other deleterious effects of HABs and pathogenic organisms;
 - Development of novel diagnostics, drugs and treatments for human diseases;
 - Securing supply of healthy and safe marine food from fisheries and aquaculture;
 - Better understanding of and preparation for current global changes which will affect the health benefits and risks of the marine environment;
 - Better understanding of the positive (therapeutic) impacts on people of the proximity to the sea.



MARINE OBSERVATIONS AND INFORMATION TOWARDS AN INTEGRATED EUROPEAN OCEAN OBSERVING SYSTEM

"We need sustained observations because today's observations cannot be taken tomorrow..."

Europe today

- The annual costs of ocean observations in Europe amount €1 billion for in situ data and €0.4 billion for space data^[1].
- Marine observations and data are essential for monitoring the rate and scale of environmental change. For instance it is estimated that a 25% reduction in uncertainty in future sea-level rise alone would save €100 million annually in European coastal defenses^[2].
- Marine observations are limited to a small number of parameters (mainly physical) and have large spatial and temporal gaps especially at shelf and coastal areas.
- Some components of the global ocean observing system are addressed through large international research efforts whilst others rely on uncoordinated national initiatives, resulting in a very fragmented picture.
- Numerous European initiatives aim at mobilising and coordinating the marine data management field, and developing common standards and protocols for quality control procedures, metadata formats and descriptions, and data exchange formats.



[1] Global Ocean Observing System & European Policy Making (2010), IOC/UNESCO, European Commission (2010), European Commission (2010), European Commission (2010), European Commission (2010).

Europe tomorrow

- Marine research and technology could be a critical driver towards:
 - The establishment of an end-to-end, integrated and inter-operable network of systems of European marine observations and data communications, management and delivery systems, supported by a comprehensive user-oriented toolkit to enable implementation of the Integrated Maritime Policy for Europe^[3].
 - The development of mutually compatible and multi-dimensional mapping of Member State waters and of a European Atlas of the Seas, as tools for managers and stakeholders to sustainably develop maritime activities;
 - The production of information and services required at local, regional, European and global scales that meet identified commercial, societal and environmental needs in a cost efficient way. Stakeholders in need of information products include policy makers, private sector, researchers and the general public;
 - The development of necessary supporting technologies (e.g. deep sea observatories) and new sensors to help fill identified observation and data gaps.

[3] Marine Board - EOP Vision Document (2008), Joint Marine Board and EuroOcean, European Commission (2010), European Commission (2010), European Commission (2010).



EurOCEAN 2010 poster series - Marine Observations and Information

MARINE SPATIAL PLANNING

TOWARDS EFFECTIVE MANAGEMENT STRATEGIES OF HUMAN ACTIVITIES IN THE MARINE ENVIRONMENT

"Marine Spatial Planning has emerged as a means to address growing competition for finite marine space and reducing human pressure on marine ecosystems and habitats".

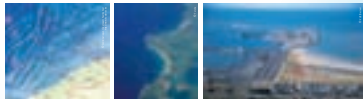
Europe today

- ① Seas and oceans represent over 50% of the territory of the European Union.
- ② In 2008, the European Commission produced a roadmap for Marine Spatial Planning (MSP) which provides the framework for Member States to implement management strategies of human activities ⁽¹⁾.
- ③ Some coastal Member States have already implemented MSP strategies and practices (e.g. UK, Greece, Poland, France, and Germany) ⁽²⁾.
- ④ Despite the growing interest of Member States to implement MSP, the scope to do so is limited in international waters (beyond 200 nautical miles) ⁽³⁾.
- ⑤ Improving MSP could generate up to €1.3 billion of revenue by 2020 ⁽⁴⁾.

Europe tomorrow

Marine research and technology could be a significant driver towards:

- ① The effective implementation of flexible and adapted MSP processes supported by a strong data and knowledge base (e.g. EMO-DETI).
- ② The use of new tools and integrated assessments to improve the ability of decision-making to take into account the important interactions between human activities and marine ecosystems ⁽⁵⁾.
- ③ An extensive knowledge of how ecological systems (e.g. food webs) are linked to the provision of goods and services which benefit to humans ⁽⁶⁾.
- ④ The implementation of a coherent network of Marine Protected Areas in EU waters ⁽⁷⁾.
- ⑤ The enhanced competitiveness of the EU maritime economy: improved cross-border cooperation, enhanced legal certainty and improved coherence of sectoral approaches and planning systems ⁽⁸⁾.



⁽¹⁾ European Commission (2008). Large aspects of maritime spatial planning. Secretary Report.

⁽²⁾ European Commission (2008). Roadmap for Maritime Spatial Planning. Achieving Sustainable Development at Sea.

⁽³⁾ European Commission (2008). Roadmap for Maritime Spatial Planning. Achieving Sustainable Development at Sea.

⁽⁴⁾ European Commission (2008). Roadmap for Maritime Spatial Planning. Achieving Sustainable Development at Sea.

⁽⁵⁾ European Commission (2008). Roadmap for Maritime Spatial Planning. Achieving Sustainable Development at Sea.

⁽⁶⁾ European Commission (2008). Roadmap for Maritime Spatial Planning. Achieving Sustainable Development at Sea.

⁽⁷⁾ European Commission (2008). Roadmap for Maritime Spatial Planning. Achieving Sustainable Development at Sea.

⁽⁸⁾ European Commission (2008). Roadmap for Maritime Spatial Planning. Achieving Sustainable Development at Sea.

EuroOCEAN 2010 poster series – Marine Spatial Planning



MARINE RESEARCH INFRASTRUCTURES

TOWARDS WORLD-CLASS MARINE RESEARCH INFRASTRUCTURES IN EUROPE

"As a research arena, the ocean is special in two distinct ways: it is costly to access, and highly variable and unpredictable."

Marine Research Infrastructures provide unique facilities to the international scientific community to address major marine scientific challenges."

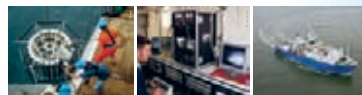
Europe today

- ① Marine Research Infrastructures (MRIs) include research vessels and associated equipment, satellites, observing and monitoring networks, data, computer centres and laboratories.
- ② The total construction costs of all the research infrastructures listed in the European Strategic Forum for Research Infrastructures (ESFRI) roadmap represent 70% of EU-27 capital expenditure on R&D in one year ⁽¹⁾.
- ③ The average age of regional research vessels is more than 20 years in Europe. Without decisive planning and investment, the regional research fleet will decline significantly in the next decade ⁽²⁾.
- ④ Almost 2,000 research institutes, data holding centres, monitoring agencies, governmental and private organisations are engaged in oceanographic and marine research activities, data acquisition and information management ⁽³⁾.

Europe tomorrow

Continued European scientific excellence and competitiveness on a global scale will rely on:

- ① Technological innovations including e-infrastructure and observing platforms;
- ② The alignment of national and European strategies towards the sharing and joint management of existing and new MRIs;
- ③ The use of dedicated legal framework (e.g. European Research Infrastructure Consortium - ERIC) facilitating the joint development and operation of MRIs;
- ④ The use of innovative funding mechanisms for the delivery and flexible operation of new MRI of strategic importance;
- ⑤ Effective coordination between different MRIs such as observing systems (e.g. observatories) and platforms (e.g. research vessels).



⁽¹⁾ European Commission (2008). A vision research infrastructure and integrated data.

⁽²⁾ European Commission (2008). A vision research infrastructure and integrated data.

⁽³⁾ European Commission (2008). A vision research infrastructure and integrated data.

EuroOCEAN 2010 poster series – Marine Research Infrastructures



MARITIME TRANSPORT

MAINTAINING EUROPE'S POLE POSITION IN SUSTAINABLE SHIPPING

"As a major European industry, sustainable shipping should meet new transport needs, deliver and use innovative technologies, and minimise environmental impacts."

Europe today

- ① Almost 90% of external freight trade in the EU is carried by sea. 40% of internal trade is by short sea shipping ⁽¹⁾.
- ② Around 3,500 million metric tonnes of cargo ⁽²⁾ and 350 million passengers ⁽³⁾ pass through Europe's ports each year.
- ③ The maritime transport sector in Europe employs 303,000 people directly and 88,000 in related services ⁽⁴⁾.
- ④ Emissions from maritime transport – Carbon dioxide (CO₂), Nitrogen oxides (NOx), Sulfur oxides (SOx) – represent 4.5% of global emissions ⁽⁵⁾.
- ⑤ European investment in maritime research amounts to €1.5 billion each year ⁽⁶⁾.

Europe tomorrow

Marine and maritime research and technology could be a significant driver towards:

- ① The development of safe, sustainable and efficient waterborne transport operations, of crashworthy vessels, with low emissions and enhanced maritime security.
- ② A competitive European maritime construction sector producing innovative vessels and equipment, new floating structures and materials for a global market.
- ③ The implementation of an innovative maritime transport system management including new port infrastructure facilities, new interoperability models, use of intelligent transportation technologies and integrated ICT solutions.



⁽¹⁾ European Parliament (2007). Towards a vision maritime policy for the Union.

⁽²⁾ European Commission (2008). Roadmap for Maritime Spatial Planning. Achieving Sustainable Development at Sea.

⁽³⁾ European Commission (2008). Roadmap for Maritime Spatial Planning. Achieving Sustainable Development at Sea.

⁽⁴⁾ European Commission (2008). Roadmap for Maritime Spatial Planning. Achieving Sustainable Development at Sea.

⁽⁵⁾ European Commission (2008). Roadmap for Maritime Spatial Planning. Achieving Sustainable Development at Sea.

⁽⁶⁾ European Commission (2008). Roadmap for Maritime Spatial Planning. Achieving Sustainable Development at Sea.

EuroOCEAN 2010 poster series – Maritime Transport



CLIMATE CHANGE CHANGING OCEANS IN A CHANGING CLIMATE

"The oceans both influence, and are influenced by, climate change. Only knowledge generated through research will unlock the complexity of this relationship and allow us to predict and adapt to the consequences of changing oceans."

Europe today

- Globally the mean temperature of the sea surface has increased by 0.1°C over the last 50 years, with significant impacts on the coastal seas ^[1].
- Sea level rise has accelerated from 2mm/yr to 3mm/yr putting coastal zones at higher risk from increased coastal erosion and flooding ^[2].
- Each year the ocean absorbs approximately 25% of all CO₂ emissions resulting in a 30% increase of sea water acidity since the beginning of the industrial revolution ^[3]. This will have severe consequences for marine organisms with calcareous skeletons including plankton, corals, snails and clams.
- Climate change has already affected marine ecosystems significantly. In the North Sea for example, nearly two-thirds of the fish species have shifted their mean latitude and/or depth over the last 25 years ^[4].



^[1] Marine Board 607 Position Paper (2007). Impacts of climate change on the European Marine and Coastal Environment. European Agency for Environment and Coastal Management. <http://www.emcm.europa.eu>
^[2] Church, J. and White, N. (2006). 21st century sea level rise: the global sea level rise of the 21st century. http://www.ipsl.fr/~ipsl/sea_level/sea_level.htm
^[3] Ocean Acidification Reference Year Group (2009). Ocean Acidification: The facts. A report commissioned by the European Union and the European Commission, 2009. http://ec.europa.eu/maritimeaffairs/docs/ocean_acidification_report.pdf

^[2] Perry, R., New, P., Ellis, R., Reynolds, B. (2005). The Impacts of Climate Change on the European Marine and Coastal Environment: Climate change and adaptation in the marine sector. Science 286, 1592-1597

^[4] 2009

EuroOCEAN 2010 poster series - Climate Change



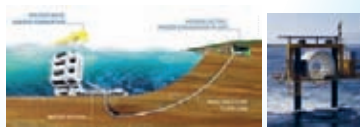
BLUE ENERGY PREPARING EUROPE FOR A NEW ENERGY ERA.

"A 100% renewable energy supply system by 2050 (...) is not a matter of technology, but rather a matter of making the right choices today to shape tomorrow."

Prof. Athanasios Zervos, President, European Renewable Energy Council ^[1]

Europe today

- Marine Renewable Energy resources include offshore wind, wave, tidal range and currents, the salinity gradient, the thermal gradient and biomass sourced from microalgae and seaweeds.
- Europe's binding objective to source 20% of its energy from renewable resources by 2020, means that 35% of electricity has to be generated from renewable energy sources; Marine Renewable Energy can and should contribute substantially ^[2].
- Wave energy converter demonstration and pre-commercial test sites are currently being developed off the coastline of Ireland, UK, Norway, France, Portugal and Spain.
- Offshore winds are stronger and steadier than on land as there are no obstacles to disrupt the flow; offshore turbines can generate electricity 70% to 90% of the time ^[3].
- The world's largest tidal barrage, the French La Rance Barrage (1966-present) produces 0.54 TWh/yr (1 terawatt = 10¹² watt) ^[4].



^[2] European Renewable Energy Council (2010) Reaching 2020: A 100% Renewable Energy Vision for the European Union. <http://www.renewable-energy.europa.eu>
^[3] European Commission. Climate 2010 (2010) EC of the European Parliament and of the Council. http://ec.europa.eu/climate/policies/energy/energy_en.htm

^[4] Agence Renewable Energy Technology (2007). <http://www.agence-renewable-energy.fr>
^[5] IREDA - The French Agency for Renewable Energy. <http://www.ireda.fr>
^[6] European Renewable Energy Association (EUREA). <http://www.eurea.eu>

^[7] 2009

EuroOCEAN 2010 poster series - Blue Energy



2010 presidency of the Council of the EU

During the second half of 2010 Belgium presided the Council of the European Union. Within this scope VLIZ (co)organised a few events that had an impact on a European scale.

The **EurOCEAN 2010** Conference on 12 and 13 October (see above) tried to build a bridge between marine sciences and science policy by determining research priorities in the “Ostend Declaration”.

During the international symposium **“Improved Fisheries and Science Partnerships as Policy Drivers”** (9 and 10 November), over 150 scientists, fishermen, NGO employees and policy makers from 15 countries met in the Kursaal of Ostend. The symposium was organised by the Flemish Government (Policy Domain Agriculture and Fisheries) in collaboration with ILVO – Fisheries and the European Directorate-General for Maritime Affairs and Fisheries (DG Mare). VLIZ was part of the organising committee.

For two days ideas were exchanged as to the way in which science and the fishing industry can work together better in the future. Successful collaboration in various countries was illustrated with examples. The terms “participation”, “confidence” and “communication” were ubiquitous in this context. Scientists and fishermen shared the opinion that only mutual trust between both partners can lead to good cooperation, which can result in better basic data and scientific advice as well as well-founded policy decisions and eventually more sustainable fisheries on every level. Communication, aimed at all interested parties, is of the utmost importance within this context. More results of this symposium can be found at www.eutrio.be/pressrelease/scientists-and-fishing-industry-want-cooperate-more.

Science and the fishing industry want to collaborate more

Scientists and the fishing industry met in Ostend on 9 and 10 November. European Commissioner Maria Damanaki emphasised that a credible fisheries policy can only be founded on a solid scientific base. The conclusion of the symposium was that confidence and transparency lead to a better scientific foundation of decisions and more sustainable fisheries.



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COREPER I visits the InnovOcean site



A group of 115 deputy members of the Committee of Permanent Representatives (COREPER I) from all member states of the European Union visited VLIZ, the Marine Board and the Project Office for IODE in Ostend on 14 July. Top – left to right: VLIZ vice-chairman Colin Janssen, VLIZ managing director Jan Mees, VLIZ chairman Governor Paul Breyne and Flemish diplomat Axel Buyse welcome the COREPER representatives. Bottom: top diplomat Didier Seeuws (left) talking to the Minister-President of Flanders Kris Peeters (right).



© VLIZ

At the start of the Belgian presidency the **Committee of Permanent Representatives (COREPER I)** visited Ostend on 14 July. The task of this group of deputy permanent representatives is to prepare the technical aspects of the activities of the Council of the European Union. These primarily relate to social and economic themes, but also to research, fisheries and energy. A group of 115 representatives visited the InnovOcean site and became acquainted with the organisations located there and their activities.

On 17 and 18 November the Flemish Club “De Warande” and the Flemish Department of Foreign Affairs organised a visit to West Flanders for the **foreign ambassadors** of those countries Flanders has concluded a bilateral agreement with. The ambassadors of Bulgaria, Lithuania, Norway, Cyprus, Peru, Thailand, Finland, Croatia, Vietnam, Israel, Serbia, China, Portugal, Malta, Korea, Chile, Japan, Grenada, Slovakia, Ireland and Uruguay and their employees (50 persons) also visited VLIZ on 18 November, where they were given some explanation of the importance of marine sciences and innovation.

Projects – external financing

In 2010 VLIZ received external funding for coordination, communication and/or data management in 30 projects (9 projects ended in 2010, 5 started in 2010 and 16 continued in 2010). Most of these projects were carried out in cooperation with research groups.

List of major projects and their funding channels

Catalogue of Life (CoML) / Sloan Foundation

FILLING the GAPS in WoRMS (I & II)

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

Completing the global marine species register (www.marinespecies.org) for the Crustacea, parasitic worms and marine molluscs groups.

Fisheries & Oceans Canada

CaRMS — The Canadian Register of Marine Species

Duration: continuous

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

EU

4D4LIFE — *Distributed Dynamic Diversity Databases for Life*

Duration: 01.05.2009 - 30.04.2012

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

CLAMER — *Climate Change and Marine Ecosystem Research Results*

Duration: 01.04.2010 - 30.09.2011

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

EMODnet — *European Marine Observation and Data Network*

Duration of lot 3 (biology): 15.05.2009 - 15.05.2012

Duration of lot 4 (chemistry): 24.06.2009 - 24.06.2012

Pilot projects to determine how a European marine observation and data network should be developed in order to support the new European integral marine strategy optimally. VLIZ is responsible for the biological pilot project (bio.emodnet.eu). It will use the existing European atlas with distribution data of marine species (EurOBIS) as a basis and further complete it. VLIZ is also involved in the chemical aspect of EMODnet.

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 a central system in order to gain access to the European research vessels (www.eurofleets.eu). VLIZ coordinates a recommendation for an ecological regional research fleet and contributes to the development of a strategic view of the European research fleet.

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

Duration: 01.11.2010 - 30.10.2013

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

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

Duration: 11.03.2009 - 31.12.2011

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

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

Duration: 01.11.2010 - 30.04.2014

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

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

Duration: 01.02.2010 - 31.01.2014

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

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).

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 (meta)data and information captured in Flanders.

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

Duration: 01.12.2009 - 30.11.2013

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

Marine Environmental Data & Information Network – MEDIN (United Kingdom)

UKRMS – *UK Register of Marine Species*

Duration: 01.01.2010 - 31.12.2010

VLIZ ensures the taxonomic validation of the United Kingdom marine species list and its disclosure through a separate website.

The Netherlands

NIOO-KNAW (II) – *Netherlands Institute of Ecology*

Duration: 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.

MONEOS evaluation – *Development of an evaluation methodology for integrated system monitoring of the Scheldt estuary*

Duration: 01.03.2010 - 01.09.2010

Preparation of an evaluation methodology for the future MONEOS monitoring programme, which will allow to evaluate the performance of the whole Scheldt estuary every 6 years, under the authority of the Flemish-Dutch Scheldt Commission (VNSC) and funded by DELTARES.

Belgian Science Policy

ANTABIF – *The Antarctic Biodiversity Information Facility*

Duration: 01.09.2009 - 31.12.2011

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

AS-made – *Evaluation of marine waste in the area of the Belgian Continental Shelf*

Duration: 01.07.2009 - 30.06.2011

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

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

Duration of phase II: 31.01.2009 - 31.01.2011

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

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

Duration of phase II: 31.01.2009 - 31.01.2011

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

ScarMarbin (II) – *Regional OBIS node for the Antarctic*

Duration of phase II: 01.02.2009 - 31.01.2010

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

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

Duration of phase II: 15.12.2008 - 31.01.2011

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

Flemish Government, Waterways and Sea Canal

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

Duration: 01.10.2009 - 31.10.2010

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

Flemish Government, Maritime Access division

SCHEDEMONITOR (2010 & 2011) – *Flemish-Dutch knowledge platform for research and monitoring of the Scheldt estuary*

Duration of 2010 phase: 01.12.2009 - 30.11.2010; Duration of 2011 phase: 01.12.2010 - 30.11.2011

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

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

Duration: 01.01.2009 - 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 2030 for the Scheldt estuary (www.scheldemonitor.be/indicatoren.php).

Flemish Government, Flemish Department of Foreign Affairs

FOCA – *Ferries Observando Canales Australes*

Duration: 01.04.2010 – 31.03.2011

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

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

2009-2010 implementation contract – *Development of information and data centre of INBO*

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

Info



Infodesk



Lugworm - *Arenicola marina* © Decler

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

Organisation of seminars, workshops, symposia and other events

In 2010 VLIZ organised, co-organised and facilitated 18 events related to marine or coastal research. It concerns 3 international symposia/conferences, 8 international meetings/workshops and 7 local events (seminars, press conferences, an inauguration or launch, a prize award ceremony, a solemn ceremony). A total number of 2,194 people attended these events.

World Oceans Day celebration on 8 June was a success!

VLIZ planned an activity for the first time on World Oceans Day, which has been organised throughout the world since 1992 and was officially recognised by the United Nations in 2008. We tried to highlight the importance of the seas and oceans for humanity through a full evening's programme of interesting lectures.



Overview of events (co)organised by VLIZ in 2010



© Collectie D. Moeyaert

4 February 2010

History of sea fisheries in Flanders/Belgium

InnovOcean site, Ostend (19 participants)

Experts (professionals and amateurs) in the history of fishing inform each other on projects and sources.

Organisation: VLIZ in cooperation with Flemish Heritage Institute

www.vliz.be/events/zeevisserij



© VLIZ

16-17 February 2010

Ocean School o10 – Education at Sea, Education for the Sea

InnovOcean site, Ostend (31 participants)

Workshop on the future of marine scientific training in Belgium.

Organisation: the Royal Academies for Sciences and the Arts of Belgium with the cooperation of VLIZ

www.oceanschool.eu



© VLIZ

25-26 February 2010

EMODnet workshop: Biological Data Products

InnovOcean site, Ostend (59 participants)

Preparation of recommendations concerning the availability of marine biological data and data products within EMODnet.

Organisation: VLIZ in cooperation with MarBEF, ICES, GBIF, SeaDataNet, PANGAEA, OBIS, IBSS NASU, SAPHOS, ESF-MB, IOC-IODE and MARS

<http://bio.emodnet.eu/workshops>



© ILVO-Moreau

19-21 April 2010

Regional Coordination Meeting - North Atlantic

InnovOcean site, Ostend (9 participants)

Regional harmonisation of national programmes for data collection with regard to the fishing industry.

Organisation: ILVO – Fisheries with the cooperation of VLIZ



© David

30 April 2010

Press conference regarding the 2010 Planet Ocean Expedition

DAB Fleet, Ostend (50 participants)

Ten pupils from Koninklijk Atheneum Oostende return from a week-long expedition at sea and are full of stories.

Organisation: VLIZ in cooperation with DAB Fleet

www.planeetzee.org/photogallery.php



© ERVO

4-6 May 2010

12th European Research Vessel Operators (ERVO) meeting

NOC, Southampton (25 participants)

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

Organisation: National Oceanography Centre with the cooperation of VLIZ

www.eurocean.org/np4/ervo



© THESEUS

2-4 June 2010

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

Campus Arenberg, Leuven (81 participants)

Six-monthly project meeting of the EU project 'THESEUS', including a boat trip to the Scheldt estuary.

Organisation: KULeuven with the cooperation of VLIZ

www.theseusproject.eu



© VLIZ

8 June 2010

World Oceans Day: evening lectures on the sea

Provinciaal Hof, Bruges (125 participants)

Evening programme for the general public on the occasion of World Oceans Day.

Organisation: VLIZ

www.vliz.be/NL/Home/&p=show&id=1282



© VLIZ

25 June 2010

VLIZ members' day, incl. presentation of 2010 Zeekrant

InnovOcean site, Ostend (56 participants)

VLIZ members become acquainted with others from the VLIZ network and new VLIZ products such as the 2010 Zeekrant.

Organisation: VLIZ in cooperation with the province of West Flanders



© CLAMER

6-7 July 2010

CLAMER workshop

InnovOcean site, Ostend (25 participants)

Workshop for partners from the FP7 project 'CLAMER' on the perception of the effects of climate change on the marine environment.

Organisation: VLIZ in cooperation with MB-ESF, NIOZ and CEFAS

www.clamer.eu



© UGent

12-16 July 2010

14th International Meiofauna Conference (FourtIMCo), incl. tribute to benthologist Carlo Heip

Aula Academica, Ghent (181 + 53 participants)

Triennial conference for meiofauna experts; book of abstracts and tribute book of the works of benthologist Prof Dr Carlo Heip with the cooperation of VLIZ

Organisation: UGent with the cooperation of VLIZ

www.fourtimco.ugent.be



© VLIZ

14 July 2010

Visit by COREPER I ambassadors

InnovOcean site, Ostend (150 participants)

The Committee of Permanent Representatives visits the innovOcean site in Ostend on the occasion of the start of the Belgian presidency of the Council of the EU.

Organisation: VLIZ in cooperation with the Flemish Department of Foreign Affairs



© VLIZ

12-13 October 2010

EurOCEAN 2010 incl. pre-event in the European Parliament

Thermae Palace, Ostend (425 participants)

European marine scientists discuss the grand challenges in marine research of the 21st century, which results in the "Ostend Declaration".

Organisation: VLIZ in cooperation with EWI, ESF-MB, BELSPO, MUMM, EU-DG Research

www.eurocean2010.eu



© L&V-Mercx

9-10 November 2010

Improved Fisheries and Science Partnerships as Policy drivers

Kursaal, Ostend (150 participants)

Symposium within the scope of the Belgian presidency to promote exchange between science and the fishing industry.

Organisation: ILVO-Fisheries, Flemish Government – Agriculture & Fisheries, EU-DG Maritime Affairs & Fisheries with the cooperation of VLIZ

www.eutrio.be/pressrelease/scientists-and-fishing-industry-want-cooperate-more



© VLIZ

18 November 2010

Foreign ambassadors

InnovOcean site, Ostend (50 participants)

Foreign ambassadors from countries all over the world who have their seat in Brussels travel all over the province of West Flanders and visit VLIZ as well.

Organisation: Flemish Department of Foreign Affairs and De Warande with the cooperation of VLIZ



© VLIZ

21 November 2010

Science Day: open ship

Zeeleeuw, Port of Gent (605 participants)

Marine sciences open day aboard the Zeeleeuw, moored at the port of Ghent.

Organisation: VLIZ in cooperation with DAB Fleet, UGent and the port of Ghent



© Collectie D. Moeyaert

25 November 2010

History of sea fisheries in Flanders/Belgium

InnovOcean site, Ostend (30 participants)

Second meeting of experts in the history of fishing.

Organisation: VLIZ in cooperation with Flemish Heritage Institute

www.vliz.be/events/zeeverij



© VLIZ

12 December 2010

Presentation of the book 'Vissers Vissen Veilig'

InnovOcean site, Ostend (70 participants)

Collection of tips to prevent industrial accidents aboard fishing vessels.

Organisation: Foundation for Sustainable Fishery Development and Previs with the cooperation of VLIZ

Educational excursions and public events

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



9, 12 and 13 April 2010

Beagle competition educational excursions

Zeeleeuw

The Belgian television channel Canvas organised a competition for students on the occasion of the programme “Beagle, in het kielzog van Darwin” (Beagle: In Darwin’s wake). Ten winning groups went for a day trip on the North Sea.

Organisation: VLIZ in cooperation with Canvas, VPRO, KVAB, Klasse, Maks, KULeuven, VIB and EWI <http://programmas.canvas.be/category/beagle/beagle-wedstrijd>



© David

25-30 April 2010

2010 Planet Ocean expedition

Zeeleeuw

Ten pupils from Koninklijk Atheneum Oostende can experience for a week what it is like to be a marine scientist.

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

www.planeetzee.org/photogallery.php



© VLIZ

20 May 2010

A sea of sports: maritime & water sports

East Bank of Ostend

Half a day of getting acquainted with the life of fishermen at sea and on the quay for students from the 2nd and 3rd cycle

Organisation: Provincial Sports Department of West Flanders and vzw Horizon Educatief with the cooperation of VLIZ

<http://westvl.schoolsport.be>



© VLIZ

25 May 2010

Ostend at Anchor 2010

DAB Fleet, Ostend

Annual maritime event, this time with a VLIZ stand in the buildings of DAB Fleet.

Organisation: VLIZ in cooperation with DAB Fleet



© VLIZ

summer of 2010

Exhibition: LIFE - nature project ZENO

Tourist office, Zeedijk Knokke-Heist

Temporary exhibition on the work for the restoration of the natural environment in the Flemish nature reserve The Zwin dunes and polders with the VLIZ production “Restoration of the natural environment at the Flemish coast”.

Organisation: ANB & Ballieul Ontwerpbureau with the cooperation of VLIZ



© VLIZ

24 July – 1 September 2010

Exhibition: Tussen Kaai en Boek (Between Quay and Book)

Library, Nieuwpoort

Exhibition on Nieuwpoort fisheries. VLIZ provides historical images and an informative poster.

Organisation: Library of Nieuwpoort with the cooperation of VLIZ



© VLIZ

23 August 2010

VELEWE educational excursion

Zeeleeuw

The committee of the Science Teachers Association (VELEWE) ventures into the turbulent waters of the North Sea for its annual meeting.

Organisation: VELEWE with the cooperation of VLIZ



© De Groeve

20 September 2010

Natuurpunt Brugge educational excursion

Zeeleeuw

The management of the Bruges division of Natuurpunt is immersed in life at sea for a day.

Organisation: Natuurpunt Brugge and the Coastal Environmental Education Centre with the cooperation of VLIZ



© VLIZ

24 September 2010

Researchers' Night

Bozar, Brussels

Coorganisation of a “sea stand”

Organisation: UGent with the cooperation of VLIZ

www.nachtvandeonderzoekers.be



© VLIZ

20 November 2010

16th Congress of the Science Teachers Association (VELEWE)

Antwerp

VLIZ organised 3 "sea lab" workshops at a congress attended by 700 teachers

Organisation: VLIZ in cooperation with VELEWE



© Diopere

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

Zeeleeuw

Antwerp Maritime Academy
 Vrije Universiteit Brussel – EcoMaMa
 Ghent University – EMBC
 Catholic University of Leuven – M Sc Biology
 Vrije Universiteit Brussel – M Sc Biology
 Hasselt University – B Sc Biology
 IODE – Ocean Teacher Academy

'De Grote Rede' magazine increasingly popular



The number of subscribers to 'De Grote Rede' has increased steadily. A total of 7,000 copies of the magazine were printed and sent to 5,433 addresses free of charge. There is a new "Education & the sea" section as from issue 27.

Publications

The number of subscribers to **'De Grote Rede'** – the magazine on the Belgian coast and the adjacent sea – had increased to 5,433 by the end of 2010. This information magazine is now printed in 7,000 copies. It is produced by over 30 editors who work in research or in coastal zone policy in a wide range of coastal and marine disciplines (http://www.vliz.be/EN/Infodesk/Infodesk_GR). Other magazines, newspapers and websites by third parties extract ever more (parts of) articles from 'De Grote Rede'.

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 (http://www.vliz.be/EN/infodesk/Infoloket_Archief_Vlizine). 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 reports on general local and international coastal and marine news. It is compiled on the basis of information collected by VLIZ and complemented by 'regional centres' from various research groups. In 2010 the digital newsletter appeared every two or three months (7 issues containing 161 news items). The e-zine is sent to 1,041 addresses.

The annual **Zeekrant** newspaper is intended to provide coastal tourists with all kinds of petty details on a wide range of marine-related subjects. The 2010 issue contains contributions on seasickness, seals at the Belgian coast, coral graveyards, stormy weather at sea, the smell of fish, what people and fish have in common and many more subjects. This summer newspaper (circulation of 75,000) is available for free at all visitor centres, libraries and tourist offices at the Belgian coast. The Zeekrant can be browsed online at www.zeekrant.be. The newspaper was officially presented by Guido Decorte, member of the Executive Council of the Province of West Flanders, at the VLIZ members' day on 25 June 2010.

In 2010 the **poster 'Birds of the Belgian coast'** appeared, the sixth in the 'Life in the sea' series of posters representing the fauna and flora of different habitats along the Belgian coast. On the occasion of the visit of the COREPER I group in July 2010 (see Coordination chapter) 3 posters were produced in English with a summary of the activities undertaken by VLIZ as to the themes of marine **biodiversity, climate change and the history of Belgian sea fisheries**. A poster in Dutch on the 'History of Belgian sea fisheries' was created for the 'Tussen Kaai en Boek' exhibition in Nieuwpoort in the summer of 2010. On the occasion of the conclusion of the Census of Marine Life in October 2010, VLIZ made a poster with the **200,000 names of species** listed at that time in the World Register of Marine Species (WoRMS) in miniature. For the EuroOCEAN 2010 Conference, 11 posters were created in English as to the **grand challenges for marine research** in the next decade in collaboration with the Marine Board of the European Science Foundation (MB-ESF). This series of posters was also converted into a brochure (represented in its entirety on p. 42 and 45).

VLIZ has drawn up digital **fact sheets** within the scope of various projects. For instance, 4 new fact sheets were drawn up in 2010 within the scope of the 'Alien species in the Belgian part of the North Sea' project (see Figures&Policy chapter). Summary fact sheets were drawn up for 17 indicator sets within the scope of the Long-term Vision and Target 2030 for the Scheldt estuary.

A nice **commemorative plaque** has adorned the façade of the VLIZ offices since June 2010 with information on the first marine research station in the world, established in 1843 by Pierre-Joseph van Beneden on the East Bank of Ostend within a stone's throw of the current VLIZ offices (also see the Coordination and Figures&Policy chapters).

In addition, VLIZ also produces various **other publications**, either on its own initiative or in cooperation with others. For instance, 4 ‘special publications’ (387 pages in total), 5 reports, 21 fact sheets and 18 posters were published in 2010. VLIZ also actively contributed to 3 co-publications and 2 publications by commercial publishing companies. In total, 11 of these (co-)publications were aimed at the general public.

Overview of non-regular VLIZ publications in 2010

VLIZ Special publications (ISSN 1377-0950)



nr. 44: Gheerardyn H. et al. (Eds) – 2010

Fourteenth International Meiofauna Conference, Aula Academica, Ghent, 11-16 July 2010. Book of Abstracts. *VLIZ Special Publication, 44. Vlaams Instituut voor de Zee (VLIZ): Oostende. 237 pp*



nr. 45: Claus S. et al. (Eds) – 2010

Report of the Biological Data Products Workshop of the European Marine Observation and Data Network (EMODnet). *VLIZ Special Publication, 45. Vlaams Instituut voor de Zee (VLIZ): Oostende. 41 pp*



nr. 46: Vandepitte L. et al. (Eds) – 2010

Belgian Register of Marine Species, compiled and validated by the VLIZ Belgian Marine Species Consortium. *VLIZ Special Publication 46. Vlaams Instituut voor de Zee, Oostende, België. ISBN 978-90-812900-8-1. 78 pp*



nr. 47: McDonough N. et al. (Eds) – 2010

EurOCEAN 2010 - Grand challenges for marine research in the next decade, Oostende, Belgium, 12-13 October 2010: Book of Abstracts. *VLIZ Special Publication, 47. Belgian Science Policy Office/Flanders Marine Institute (VLIZ): Brussel. 30 pp*

Various publications – Reports



Mees J. et al. (Eds) – 2010

VLIZ Jaarboek 2009. Voor al wie gefascineerd is door de zee en de kust. *Vlaams Instituut voor de Zee (VLIZ), Oostende, Belgium. 152 pp ISBN 978-90-812900-6-7*



Mees J. et al. (Eds) – 2010

VLIZ Annual Report 2009. Supporting marine and coastal research in Flanders. *Flanders Marine Institute (VLIZ), Oostende, Belgium. 152 pp ISBN 978-90-812900-7-4*



Anon. – 2010

VLIZ Collected Reprints: marine and coastal research in Flanders, 39 (2009). *Flanders Marine Institute (VLIZ), Oostende, Belgium.* [cd-rom].



Cattrijsse A. – 2010

Jaarverslag Zeeleeuw 2009. *Vlaams Instituut voor de Zee (VLIZ), Oostende, Belgium.* 26 pp



Goffin *et al.* – 2010

De ScheldeMonitor. Derde visiedocument voor het data- en informatiesysteem voor Onderzoek en Monitoring van het Schelde-estuarium. *VLIZ: Oostende.* 17 pp

Various publications - Others



Poster 'Zeevogels van de Belgische Kust'

Vlaams Instituut voor de Zee (VLIZ), Oostende, Belgium.



Poster 'Marine Biodiversity'



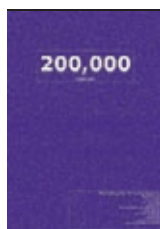
Poster 'Climate Change'



Poster 'History Belgian Sea Fisheries'



Poster 'Historiek Belgische Zeevisserij'



Poster '200,000 marine species in WoRMS' – October 2010



Commemorative plaque 'The first marine research station in the world (1843)'

VLIZ Co-Publications



Seys J. & Copejans E. (Eds) – 2010

Zeekrant 2010. *Jaarlijkse uitgave van het Vlaams Instituut voor de Zee en de Provincie West-Vlaanderen, Oostende, België.* 8 pp
ISBN 978-90-5461-629-0



Narayanaswamy *et al.* – 2010

Diversity of European seas: Finding new life. EuroCoML Non-Technical Report. The European Census of Marine Life: Oban. 55 pp.



Poster 'The Ocean, it's in your hands'



Poster 'Blue Energy – Preparing Europe for a new energy era'



Poster 'Climate Change – Changing oceans in a changing climate'



Poster 'Marine Ecosystem Functioning - Translating fundamental knowledge for the sustainable management of the seas'



Poster 'Education and Outreach - Reinforcing general knowledge and expertise on the seas in Europe'

	Poster 'Food - Towards a sustainable harvest from the seas'
	Poster 'Oceans and Human Health - Risks and remedies for human health and well-being'
	Poster 'Marine Observations and Information - Towards an integrated European ocean observing system'
	Poster 'Marine Spatial Planning - Towards effective management strategies of human activities in the marine environment'
	Poster 'Marine Research Infrastructures - Towards world-class marine research infrastructures in Europe'
	Poster 'Maritime Transport - Maintaining Europe's pole position in sustainable shipping'
	Brochure 'The Ocean, it's in your hands'

VLIZ contributions to publications for the public at large



Hynes M. – 2010

Zeeën & oceanen. *Baeckens Books: Mechelen, België / Noordwijk, Nederland.* 48 pp.

ISBN 978-90-5461-629-0



Belgische Noordzee rijk aan soorten – juli 2010

EOS Maandblad over wetenschap

Leaflets and other materials

Flyer EurOCEAN 2010 conferentie

Flyer PESI

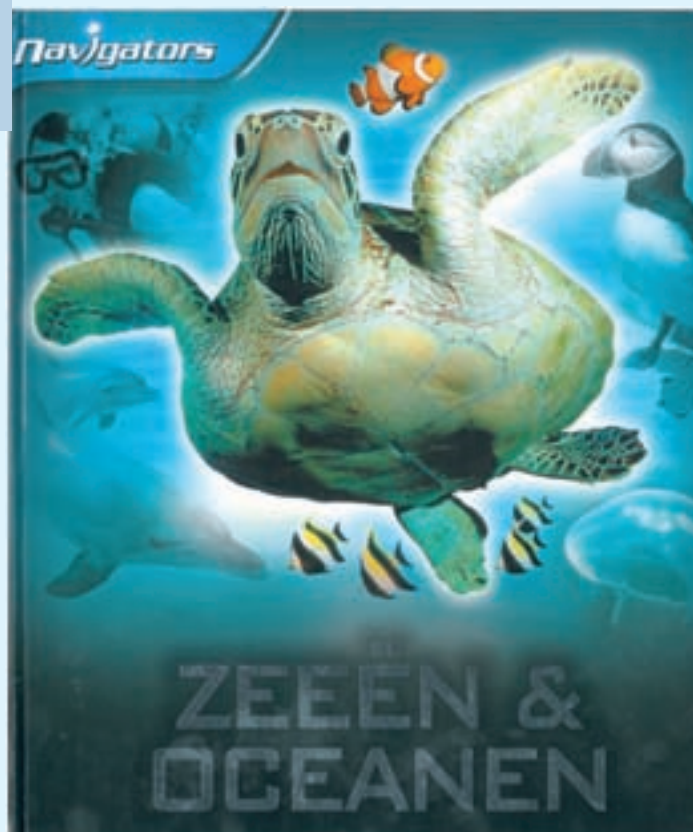
Flyer THESEUS

Kalender 2010 – Vlaams marien onderzoek

Getijdenboekje 2010

Proofreading of the translation of a juvenile book on the sea

The “Oceans & Seas” volume from the Navigators series will be published in a Dutch translation by Baeckens Books. The translation of this juvenile book (10+) by Guy Brugmans was proofread by VLIZ.



Natuurpunt awards the Groene Jutter 2010 prize to Jan Seys and the Flemish marine scientists

During the Natuurpunt symposium on coastal defence and climate change, the Groene Jutter 2010 prize was awarded to VLIZ employee Jan Seys for his tireless efforts for the coastal environment. Indirectly, this prize is also intended for over 1,000 scientists who make a daily effort to gain insight into the wondrous marine world.



© Mollet

The VLIZ website

One of the principal aims of VLIZ is to make the versatile and high-quality marine and coastal research in Flanders and the wider region more widely known. For this purpose we invest a great deal in making research results and derivative data products available on the Internet. The Webometrics ranking (July 2010) shows that the output of Flemish marine sciences is indeed consulted in this manner: http://research.webometrics.info/rank_by_country.asp?country=be. This initiative by the Spanish Cybermetrics Lab CSIC essentially examines how scientific institutes use the Internet to make research results visible.

VLIZ heads the list for Belgium and ranks far above our 'big brothers', the other Flemish and Belgian federal scientific institutions. The collection of websites within the VLIZ.be domain is number 181 out of 4,000 globally. This is 56 places up compared to 2009. In Europe we are number 83. This is the first time we have made the top 100! IFREMER is the only European marine institute that ranks above us.

All websites within the VLIZ.be domain taken together were visited 829,045 times in 2010. A total of 3,722,787 pages were consulted.

Infodesk 'Our Coast'

In 2010 the VLIZ infodesk received 167 specialised requests for marine information, documents or contact information of persons involved in marine scientific research. These requests come from private individuals, students and teachers, companies, the government and scientists from Belgium and abroad. Journalists from the press, radio and TV also know how to find us if they are looking for more detailed information and references to third parties (29 requests). The VLIZ Infodesk spares no effort to always provide a detailed, professional answer to incoming questions. This is highly appreciated by our users in these times of automatic reference systems and paid help lines.

Studio 100 makes use of VLIZ for new 'Piet Piraat' series

Time and again in the new series, the most popular Flemish pirate thumbs through his "Great Wonder Water World Book", which contains everything you need to know about underwater animals. VLIZ actively contributed to its preparation and thus ensures the scientific correctness of the series.



© Studio 100

The most interesting questions and answers are stored in the **'Our Coast' information portal** (www.vliz.be/vmdcdata/faq), so that they can be consulted freely by the public at large through the VLIZ website. A total of 671 questions and answers were online (582 in Dutch and 89 in English) and some 600 sea-related words were explained at the end of 2010. On the VLIZ website we also offer 2,970 relevant **seastats** (www.vliz.be/cijfers_beleid/zeecijfers) to the general public to help them in their search for reliable figures and facts on all sorts of marine matters (see Figures&Policy chapter).

VLIZ assists in the **'Ik Heb een Vraag'** project, a partnership of 32 Flemish scientific institutes to maintain an online scientific information portal (www.ikhebeenvraag.be). VLIZ takes care of the question management for one week a year and has answered 54 sea-related questions.

The **Sea On Screen** website (www.seaonscreen.org) is intended to make people aware that a valuable and unique world that is well worth protecting is hidden under the sea surface. It is especially aimed at students of higher secondary education, but the general public will certainly find something to their liking here as well. The website presents a great deal of information by means of various media, ranging from photographs to movies and animated maps. The 'De Vleet' encyclopaedia, in addition, provides access to numerous files and blogs by marine scientists. The 'SeaOnScreen' foundation is a consortium of different Dutch institutes – NIOZ, IMARES, Stichting De Noordzee, Ecomare, NAM, NIOO-KNAW and NWO – which was extended with VLIZ as an adviser within the scope of the development of a Scheldt module. VLIZ ensures the implementation as regards content of this Scheldt module by means of interactive maps of the mouth of the River Scheldt up to Ghent (with an integrated interactive tidal effect!). Sea On Screen also has a blog where it is possible to follow marine scientists from the Netherlands and Flanders during their day-to-day activities in the field or the lab.

2010: International Year of Biodiversity

The United Nations declared 2010 to be the International Year of Biodiversity. This way they wanted to call attention to life on earth and recognise the value of biodiversity in our lives. The world was urged to take action to protect the variety of life on earth. VLIZ also took numerous actions within this scope, both as to communication and as to data management.

VLIZ activities within the scope of the International Year of Biodiversity 2010: an overview of the activities



© Vanderwegen



© VLIZ

MAY

A series of Environmental Seminars is organised in the business centre of the Belgian pavilion at the 2010 Shanghai Expo. Jan Mees gives a presentation at the Biodiversity Seminar on 31 May.

JUNE

Press release on the occasion of World Oceans Day on 8 June: Abundance of species in the Belgian part of the North Sea mapped out (www.vliz.be/NL/HOME/?p=show&id=1397).



AUGUST

Within the scope of the International Year of Biodiversity and the Belgian presidency of the Council of the EU, the Flemish Radio and Television Network VRT made a series of radio programmes on "biodiversity at home". Hilde Walschaerts from Radio 1 devoted a broadcast specifically to marine biodiversity; the broadcast can be found at: www.radio1.be/programmas/ochtend/internationaal-jaar-van-biodiversiteit (click on AUDIO).

SEPTEMBER

In 2010, VLIZ started to list all marine species that live in the Belgian part of the North Sea in collaboration with a large group of field experts from Belgium and taxonomic experts from all over the world. There is a special publication on this Belgian Register of Marine Species (BeRMS) and a separate website www.marinespecies.org/berms. So far the number of registered species is 2,187.

JUNE

VLIZ takes the press to watch the "bioluminescence of the sea". As the sea sparkle (a dinoflagellate) abounded in the water, every movement caused an enchanting bluish green light.





OCTOBER

VLIZ collaborates on the double TV programme on biodiversity in Belgium, broadcast on CANVAS on 19 and 26 October.



© Daviorin Tome

CONTINUOUSLY

VLIZ has developed a portal for the Pan-European list of species (PESl) (www.eu-nomen.eu/portal) in which an extensive group of taxonomists collect the names of all terrestrial, aquatic and marine species living in Europe. VLIZ gathers both the scientific names and common names of marine species in various European languages.



OCTOBER

All valid and former names of the 250,000 marine species already discovered and described can be found in the World Register of Marine Species (WoRMS) (www.marinespecies.org). When the Census of Marine Life came to an end (early October), the number of species in the register was just over 200,000. So our employees at the VLIZ data centre and the 239 taxonomic experts from all over the world still have a long way to go, if we can believe the estimates according to which a total of 1,000,000 species of organisms live in the seas and oceans...!



OCTOBER

VLIZ is present at the concluding conference in London after 10 years of Census of Marine Life (CoML) with a poster with the 200,000 valid names of species listed in the World Register of Marine Species (WoRMS).



CONTINUOUSLY

VLIZ integrates the distribution data of marine species in European seas into the biological data portal of EMODnet (European Marine Observation and Data Network - bio.emodnet.eu). Over 14 million distribution data were made available in 2010.



NOVEMBER

Double coverage of biodiversity in the North Sea in the TV programme "Karrewiet" on the children's television channel KETNET from the research vessel 'Zeeleeuw'.



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NOVEMBER

The Metaforum Leuven symposium "Biodiversity: basic commodity or luxury item?" on Thursday 4 November 2010 at KULeuven raises the alarm as to the loss of biodiversity. Jan Mees gives a lecture and helps to "marinate" the position paper: dagkrant.kuleuven.be/?q=node/8827 and www.kuleuven.be/lsue/biodiversity/biodiversity-symposium.



CONTINUOUSLY

VLIZ and many collaborators in Europe continue to work on the development of the portal on marine biodiversity and ecosystem functions within Coastal WIKI: www.coastalwiki.org/coastalwiki/Portal:Marine_Biodiversity



CONTINUOUSLY

Together with a consortium of scientists from all over Flanders, work is continued on keeping the list of alien marine species in our waters up to date and drawing up extensive fact sheets of those species.

VLIZ and marine sciences in the press



By distributing our own press releases or at the request of journalists, VLIZ introduces marine sciences in (national and international) newspapers and magazines as well as on radio, TV and websites.

VLIZ in the press

Official press releases launched by VLIZ were eagerly taken up by the media in 2010. The quite special press action taken in June, in which we roused the interest of the press in the spectacular phenomenon of “Fire of Sea”, can certainly be considered successful. Journalists contact the VLIZ Infodesk when they are looking for quotes and background information for their marine articles. In 2010, VLIZ collaborated on several TV and radio programmes. Through various news pages of the VLIZ website, 48 messages in Dutch and 31 messages in English were posted as to our activities in 2010. Some of these messages were picked up and spread by means of (digital) newsletters and e-zines of other organisations and institutes in Belgium and abroad.

Educational activities and products

A **Beagle competition** for students from secondary education was organised following the TV series “Beagle, in het kielzog van Darwin” (Beagle: In Darwin’s wake; a co-production of Canvas and VPRO). Seventy groups made a movie as to what they think the world will look like in the year 3010. Ten competing groups won a scientific day trip aboard the Zeeleeuw (9, 12 and 13 April 2010). Four groups won the first prize of boarding the Stad Amsterdam (which replaced HMS Beagle in the programme) off the South African coast.

The e-learning project **Planet Ocean** (www.planeteezee.org) was organised for the third time during school year 2009-2010. This edition was won by Koninklijk Atheneum Pegasus Oostende, led by Lieselotte Van Laethem. Ten students embarked on an unforgettable expedition (from 25 to 30 April) in which they participated in an investigation into the behaviour of fish populations in wind farms, examined bycatches caused by different fishing techniques, could admire porpoises and a white-beaked dolphin in the wild, could navigate themselves in a man overboard simulation, saw Ostend from above on top of the high Ostend lighthouse, visited the Shipping Assistance Division, and so much more.

‘Leraren op zee’ (Teachers at Sea), a project for educational excursions for teachers, was launched in 2010. This way we want to give them a taste of the ‘briny’ exercises and practicals offered through the sea lab (see below) and demonstrate that the sea and coast can easily be incorporated into lessons. We went ahead on 23 August 2010. The Board of Directors of the Science Teachers Association (VELEWE) ventured on an excursion at sea with Beaufort force 6-8.

At the **‘Zee van Sporten’** (Sea of Sports) event (20 May 2010) students from secondary education follow an educational route on the East Bank of Ostend. VLIZ provides an educational session concerning ocean currents and a practical concerning plastic pollution.

Together with biology teacher Michiel Smits, VLIZ provided three **‘Sea Lab’** workshops at the 16th Congress of Science Teachers in Antwerp on 20 November 2010. A total of approximately 700 science teachers visited the congress.

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

Open ship in Ghent for Science Day 2010

On the misty Sunday of 21 November the Zeeleeuw was a guest at the port of Ghent on the occasion of Science Day. Over 600 visitors showed an interest in the instructive experiments and demonstrations conducted by UGent, DAB Fleet and VLIZ.



© VLIZ

Making reliable information available in a modern and visually appealing form is essential to support education. For this reason, VLIZ continues to create **informative movies** about coastal and maritime activities, always in close cooperation with Flemish marine scientific researchers and policy makers. The production is carried out by external production company Bi-oS. The following productions were launched in the course of 2010:

- **PESI - A Pan-European Species Directories Infrastructure**, as to how the European taxonomic information is standardised.
- **The LIFE Nature project ZENO**: on the restoration of the natural environment at the Flemish coast, in collaboration with the Agency for Nature and Forests (ANB). The film was shown at the temporary Zwin exhibition.
- **Seagulls in the city** (2 parts): as to how gulls and humans coexist, in collaboration with the Coordination Centre for Integrated Coastal Zone Management

VLIZ develops digital **lessons on the sea** concerning important themes from various fields of study (geography, biology, chemistry, physics ...) which are attuned to the different curricula. They consist of a PowerPoint presentation and accompanying notes for teachers. The lessons on the sea can be download free of charge from the VLIZ website: www.vliz.be/NL/Infoloket/Digitale_zeelessen. A total of 30 teaching packages (in Dutch) as to the most diverse marine and coastal research were online at the end of 2010. The new teaching package '**Landscapes of our coast**' is attuned to the new final attainment levels for geography teachers from the first cycle of secondary education (GO!).

VLIZ also developed a **sea lab**: a collection of assignments, experiments and fieldwork attuned to the curricula and final attainment levels (www.vliz.be/NL/infoloket/zeelessen_opdrachten). They comprise the necessary didactic information and advice for teachers. In 2010 the following new practical exercises were specifically developed for the sea lab: **Seawater oxygen content** (Winkler-Alstenberg method), **Micro-plastics in sea sand** (detection by means of a salt solution), **Bioluminescence test with sea-fireflies** (enzyme system) and **Ocean circulation** (density differences).

VLIZ developed the "climate and ocean" module for the virtual learning pathway '**Planeet Aarde**' (Planet Earth) (www.planeetaarde.be), intended for use in geography classes for the third cycle of secondary education (ASO/BSO/TSO).

Marine L



Marine Library



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

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

Dunlin - *Calidris alpina* © Decler

The VLIZ marine library is the most extensive marine scientific information centre in Belgium.

The core of the collection consists of recent and historical works by Belgian marine scientists, supplemented with literature and multimedia materials on the Southern Bight of the North Sea, the Belgian coastal area, the Flemish dune and polder belt and tidal rivers. The collection is further expanded with literature and multimedia materials that are relevant to Belgian marine research. The library is aimed at Belgian and international scientists and policy makers as well as the interested public.

Collection: facts and figures

The most important part of the collection is the **Open Marine Archive** (OMA). OMA collects the scientific output of Belgian marine scientists and makes it available digitally and in its entirety through the VLIZ website. This way we promote the visibility, distribution and use of Belgian marine research results 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. At the end of 2010, OMA comprised 6,890 titles that were downloaded 53,818 times in total.

Internet users from all over the world can freely consult and download all of these publications through the VLIZ website (www.vliz.be/EN/Marine_Library/Library_OMA). The OMA records rank prominently among search results thanks to 'harvesters' such as Google Scholar, AVANO and OAlster. These good scores contribute to the excellent rating of the VLIZ website in the Web Ranking of Research Centers (also see Infodesk).

The complete catalogue of the VLIZ library increased by 27,758 new titles in 2010. This brings the total number of titles to 160,273. At the moment, 26,642 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 (see box). At the end of 2010 the BMB also contained 1,570 Belgian marine theses.

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

For instance, the project '**A century of sea fisheries in Belgium**' – launched and driven by the Figures & Policy department – is at the basis of the digitisation of the complete series of 'Jaarverslag over de Zeevisserij' (Annual Report on Sea Fisheries; 1912 – 1946) and 'Officiële lijst van de Belgische vissersvaartuigen' (Official List of Belgian Fishing Vessels; 1,929 up to now). All separate numbers of these series are now available online through the VLIZ website (as from the first number at www.vliz.be/imis/imis.php?module=ref&refid=140700). Partly thanks to this project we had the opportunity to take over the library collection of the Sea Fisheries Department in Ostend, so that numerous unique titles as to the local social aspects of fisheries, maritime education and fisheries legislation ended up in our collection.

We also started to expand the subcollection '**Fiction on the sea**', which contains novels, travel stories and poetry with a marine context in 2010. In the run-up to the commemoration of the 100th anniversary of the First World War, many publications on **the Great War at the Belgian coast** have been acquired.

Belgian Marine Bibliography (BMB)

The leading reference list of all publications on the Flemish coast and all other marine literature written recently or in the more distant past by Belgian authors and scientists now contains over 26,000 titles.

The BMB covers a very wide variety of subjects. This ranges from geological reports in the prestigious Challenger expedition series to local anecdotal writings e.g. by Omer Vilain from Ostend; from annual reports on Belgian sea fisheries and works dealing with the Great War at the Belgian coast to the most recent scientific literature and theses.



Geologist Alphonse Renard from Ghent processed soil samples from the HMS Challenger expedition (1872-1876). Together with John Murray he subsequently wrote the "bible" of marine geology. This is one of the illustrations from this work, made by Renard with astonishing precision.

Murray, J.; Renard, A.-F. (1891). Report on the scientific results of the voyage of H.M.S. Challenger during the years 1873-76 under the command of Captain Georges S. Nares and the late Captain Frank Tourle Thomson, Part III. H.M. Government: London. 523, 29 plates, 43 maps, 22 diagrams pp.



The complete series of 'Jaarverslag over de Zeevisserij'* (Annual Report on Sea Fisheries) and 'Officiële lijst van de Belgische vissersvaartuigen' (Official List of Belgian Fishing Vessels) are digitally available through the VLIZ website.

* (1936). Bestuurlijk Jaarverslag over de Zeevisserij 1935. Bestuur van het Zeewezen: Brussel



Local anecdotes recorded by Omer Vilain from Ostend.

Vilain, O. (1976). Langs de galerijen. Kleine Oostendse histories, 3. O. Vilain: Oostende. 144 pp.



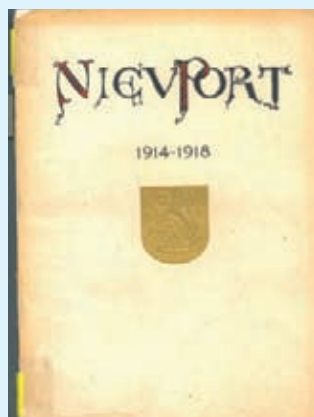
The most recent publications written by Belgian marine scientists are also added to the VLIZ collection as soon as possible.

Rabaut, M. (2009). *Lanice conchilega, fisheries and marine conservation: Towards an ecosystem approach to marine management*. PhD Thesis. Ghent University: Gent. ISBN 978-90-8756-025-6. xvii, 354 pp



You will also find works that allow to identify the local fauna and flora (whether or not written by Belgians) in the VLIZ marine library.

Fraussen, K.; Wera, S. (2010). *Schelpen aan de Belgische kust: weet wat je vindt op het strand*. Lannoo Campus: België. ISBN 978-90-209-8950-2. 144 pp.



In view of the commemorations of the First World War, additional attention will be paid to literature on the Great War and the Belgian coast in the next years.



Collected works of Belgian marine scientists

The completion of the list of publications written by prominent Belgian marine scientists in the course of their long careers is one of the latest objectives of the VLIZ library. The works of benthologist Heip and geologists Henriët and Renard were collected in 2010.



© VLIZ

In addition to subject-oriented actions, increasing attention is paid to the completion of **publication lists of prominent Belgian marine scientists**. This takes place in collaboration with third parties or on our own initiative.

For instance, in 2010 we participated in an action by the Marine Biology Section of Ghent University to compose a tribute book and CD-ROM with the complete publication list of Prof Dr Carlo H.R. Heip on the occasion of the International Meiofauna Conference in Ghent (12-16 July 2010). In honour of the retirement of Prof Dr Jean-Pierre Henriët at the Renard Centre of Marine Geology (UGent), his publications – together with those by Alphonse Renard – were also digitally collected on a CD-ROM and disclosed through the Open Marine Archive.

Service

Publications are collected, catalogued and – if possible – made available digitally. Nearly 20% of the collection can already be accessed freely by all end users from any computer. Works that are only available in paper version can be consulted at the library and can be copied or scanned.

The titles from the collection can be searched by means of the **literature catalogue** in the IMIS information system (www.vliz.be/imis → Search publications). In addition to the VLIZ library catalogue, the catalogues of the libraries of the Research Institute for Nature and Forest (INBO) and the Hydraulic Laboratory are also disclosed by means of the same system. To make the catalogues even more accessible, a new search screen with additional options and a new layout of search results was launched in 2010.

All titles from the Marine Library as well as sources that are not present in our collection and are more difficult to find can be requested through the document [delivery service](#). In 2010 we received 461 requests for document delivery. We were able to meet 97% of all requests. Approximately 40% of all references could be supplied from our own collection. The other publications were mainly obtained through networks such as IMASLIC , Antilope/Impala and Subito Germany.

A total of 283 subscribers receive a weekly list of all publications added to the collection in the previous week, the [VLIZ Library Acquisitions List](#), by e-mail. VLIZ annually compiles the scientific articles of Flemish marine scientists in the [VLIZ Collected Reprints](#) and exchanges these articles with the publications of over 150 marine centres worldwide. The CD of volume 40 (2010) is enclosed in the current annual report.

Cooperation within networks and projects

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](#)).

Furthermore, the VLIZ library is a member of the European ([EURASLIC](#)) and international ([IAMSLIC](#)) associations of aquatic and marine libraries. The VLIZ library collaborates with the Intergovernmental Oceanographic Commission ([IOC](#)) of UNESCO as well. The Marine Library acts as the input centre for all Belgian marine publications in the [ASFA](#) (Aquatic Sciences and Fisheries Abstracts) database of FAO.

Images of Belgica expeditions disclosed through Wetenschatten archive

Nearly half of the 900 or so new images that were added to the Wetenschatten website in 2010 illustrate the expeditions to the South Pole (1897-1899) and Greenland (1907) of the former research vessel Belgica.



Le Commandant et Stappers

Since 2008 the Marine Library has been collaborating on the **‘Wetenschappen - vier eeuwen kustonderzoek in beeld’** (Scientific treasures, four centuries of coastal research in the picture) project. This project was developed with the support of the Province of West Flanders within the programme for permanent disclosure of Immaterial Cultural Heritage. The Wetenschappen website (www.wetenschappen.be) discloses the numerous illustrations from publications produced over time by Belgian coastal and marine research. In each case, the images are provided with the necessary background information and a short description. In 2010 the archive was enlarged with 878 additional images, which makes for a total of 2,908 images. This year extra attention was paid to new visual material regarding the Belgica expeditions. This took place within the scope of the launch of the new Belgica website www.belgica-genootschap.be.

Apart from that...

In an ever growing and better performing Flemish marine network there is an increasing need for complete and correct recording and redistribution of all available marine information. The expansion and strengthening of the VLIZ information management was therefore a logical step. Since May 2010 a three-man team consisting of an information manager, a librarian and an assistant librarian have structurally supported all information needs of the Flemish marine sector.

The VLIZ library suffered water damage in March 2010. A water pipe on the first floor of the VLIZ buildings – just above the library – had broken. Fortunately, only a small part of the collection was damaged. This unfortunate event did give an extra impetus to the further digitisation of the valuable items present at the VLIZ library. The electronic archiving and protection of these unique publications will therefore become more important and will be carried out at greater speed in the coming years.



Figures &



Figures & Policy



Harbor seal - *Phoca vitulina* © Decler

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

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

Figures & Policy supports a sustainable and scientifically founded policy for the coastal area, the marine areas and the adjacent estuaries by providing policy-relevant scientific information.

When collecting and supplying data and information, Figures & Policy focuses both on questions by professionals who deal with the coast and sea on a daily basis, such as scientists and policy makers, and on specific target groups and the interested public. Close collaboration with the network of Flemish marine scientists and good internal cooperation with the VLIZ data centre, Marine Library and Infodesk are essential in this respect.

The primary 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 impossible to set this area apart from the developments with regard to marine and maritime policy in Europe and the conservation and sustainable use of the seas and oceans worldwide.

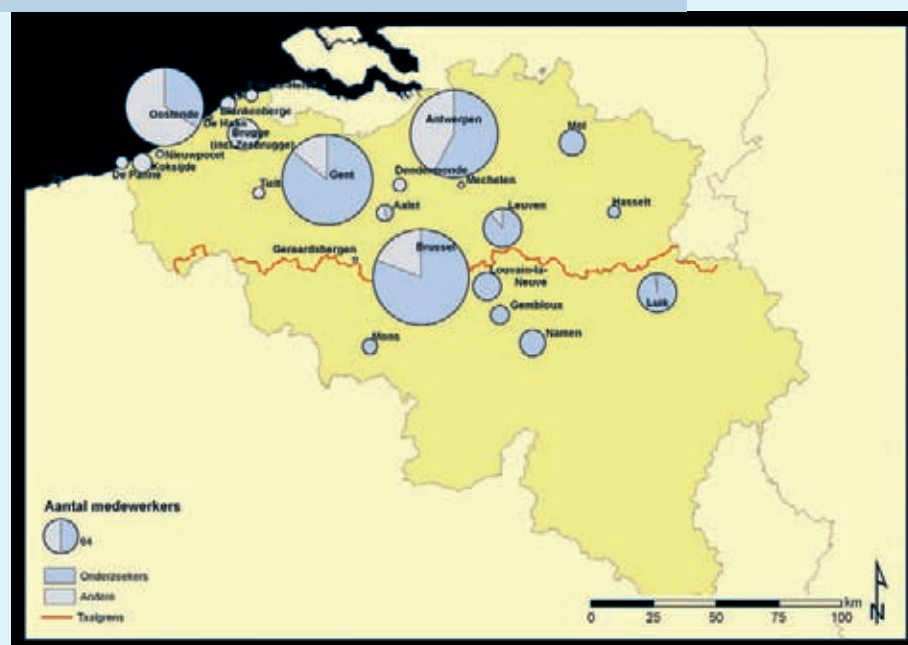
VLIZ recognises the Coordination Centre for Integrated Coastal Zone Management (CC-ICZM) as the main point of contact for integrated management of the coastal area in Belgium. In its capacity as a partner, VLIZ provides technical and scientific support to the CC-ICZM within the scope of the fulfilment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

Marine scientific landscape

One of the principal tasks of VLIZ is mapping the marine scientific landscape in Flanders and Belgium. Our coastline is only 67 km long. Nevertheless, our country currently boasts approx 1,000 specialised employees, spread over more than 100 groups, who are involved in studying the coast and sea. You can find the expertise you need in Belgium, whether it concerns reflection seismology and gas hydrates, climate research and coastal defence, tidal and wave power, the chemical analysis of seafood, marine spatial planning, shrimp and mussel farming, or the study of microscopic algae.

Highly fragmented marine scientific landscape in Belgium

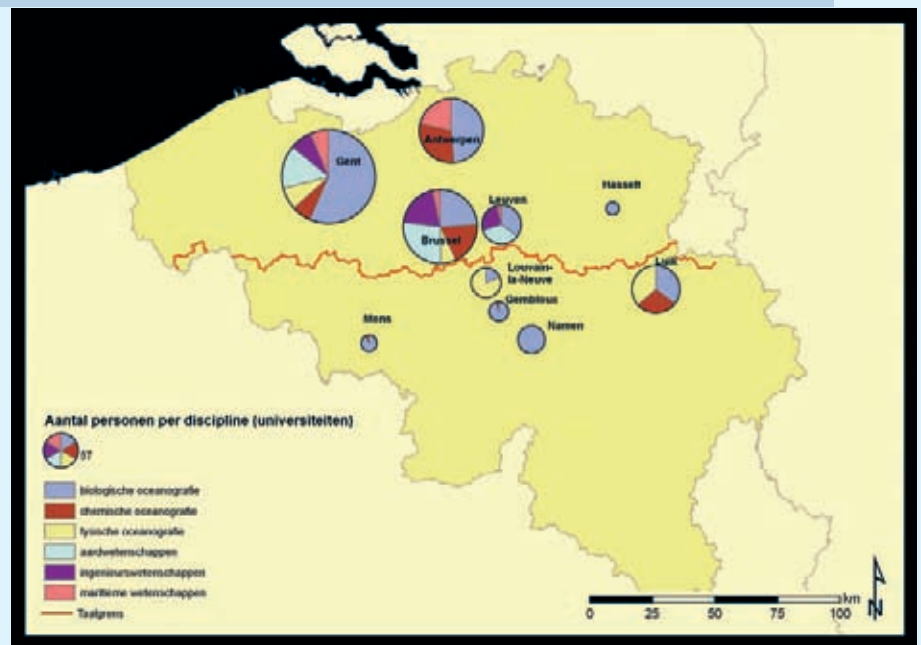
Share and location of employees in research groups (both universities, federal and Flemish institutions) that conduct marine and coastal scientific research in Belgium. 'Other' includes companies, museums and visitor centres, local government institutions and (inter)national non-governmental organisations. The size of the diagram reflects the size of the group.



© IMIS database (VLIZ, 2009)

Diversity and specialisation are important assets of Belgian marine research

Share and location of employees in research groups (both universities, federal and Flemish institutions) according to research domain.



The number of marine research groups and 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) and of the size of the financial flows towards research and monitoring in marine and estuarine disciplines was carried out 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 and Belgium can also build on a rich historical heritage in marine sciences. Important scientists and prominent historical figures and events from the 18th, 19th and early 20th century made sure that Belgium still plays an important part in marine sciences today. The biography of some of those prominent scientists is available as a fact sheet on the website www.vliz.be/EN/Figures_Policy/Figures_Policy_Marine_Sciences_History.

A detailed study of historical source material made it possible to trace the history of various marine research stations in Ostend in 2010. In 1843 professor Pierre-Joseph van Beneden from Leuven established the world's very first marine research station at the Valcke-Deknuyt oyster tank on what was then the east bank of the port of Ostend. In doing so, the Belgian professor was ahead of his time and of a wave of similar stations elsewhere in Europe and the world. The 'marine research atmosphere' has remained here ever since and several stations were founded until the current Flanders Marine Institute was eventually established in Ostend in 1999.

The world's very first marine research station established in Ostend in 1843

HET EERSTE MARIENE ONDERZ The first marine research station in the world (1843)

Het is misschien moeilijk in te beelden maar achter u - in de huidige havengeul op nauwelijks honderd meter van de kade - lag ooit het allereerste mariene onderzoeksstation ter wereld! Deze primeur hebben we te danken aan de Leuvense professor Pierre-Joseph van Beneden, één van de grootste Belgische wetenschappers, uit de 19^{de} eeuw. Vandaag leeft zijn erfenis verder in het internationale oceanografische centrum vóór u, de InnovOcean.

PIERRE-JOSEPH VAN BENEDEN (1809-1894)



Pierre-Joseph van Beneden werd geboren in Mechelen op 19 december 1809. Hij was al van jongs af aan gebeten door de natuur. Na geneeskunde te hebben gestudeerd, trok hij naar Parijs om zich in de dijkunde te vervolmaken. Niet veel later werd hij tot professor benoemd aan de Katholieke Universiteit van Leuven. Na eerst vijftien jaar van zijn carrière te hebben gewijd aan het ontrafelen van de levenscyclus van de lintworm legde hij zich vol overgave toe op de studie van de mariene fauna, van microscopisch kleine dieren tot walvissen. Als geen ander drukte hij zijn stempel op de ontluikende Belgische en internationale zeewetenschappen. Zo richtte hij, ten behoeve van het onderzoek van de Belgische kustfauna, in 1843 in Oostende het allereerste mariene station ter wereld op. ¹ Met deze actie inspireerde hij de vele stations, zoals Concarneau (1859), Roscoff (1872) en Napels (1872) die kort daarna ontstaan zijn. Vanuit zijn "Laboratoire des dunes" kon hij op een systematische en efficiënte wijze onderzoek verrichten. Bovendien verzekerde de nabijheid van vissersschepen, vismijn en oesterputten ("huîtres") hem van voldoende aanvoer van levend materiaal.

HET MARIENE STATION

Van Beneden bracht zijn vakanties vaak door in Oostende. Hier leerde hij ook zijn vrouw, Rosa Valcke, kennen. Het was aan de oesterput van zijn schoonvader, Jean Valcke, dat Pierre-Joseph de ideale plaats vond voor zijn grootse plan: de oprichting van een mariene onderzoeksstation (zie foto). Het station bevond zich toen op de oosteroever van de haven van Oostende. Hoewel bescheiden in afmetingen (5x5m), was hier al het noodzakelijke wetenschappelijke basismateriaal aanwezig. Gerenommeerde buitenlandse collega's zoals Müller, de Quatrefages, Lacaze-Duthiers, Ehrenberg en Schultze verrichtten hier onderzoek. Ook Edouard, de zoon van Pierre-Joseph, was al vroeg gefascineerd door de mariene fauna en zou later in de voetsporen van zijn vader treden. Aanvankelijk werkte hij in dit station, in 1883 richtte hij iets verderop een groter station op. ² De appel viel niet ver van de boom...



Belgium can be proud of having founded the very first marine research station in the world. It was professor Pierre-Joseph van Beneden from Leuven who built a modest "Laboratoire des Dunes" (dune laboratory) with private means on the east bank of the port of Ostend in 1843. An informative plaque on the façade of the VLIZ offices shows the exact location of this now vanished Belgian world first.

A commemorative plaque at the VLIZ offices states the locations of the different research stations and their history. The entire story of the historical research was published in Earthzine on 18 August 2010 (www.earthzine.org) under the title "The World's Very First Marine Research Station In Ostend (Belgium)".

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), but it can also be directed from current policy and research questions or future scenarios. Extensive databases often need to be 'translated' and 'repackaged' within the scope of specific policy objectives. Linking time series together – across methods, measurement periods and administrative boundaries – requires specific research and tuning. Recovery and integration of historical data and time series increase our objective outlook on the current ecological condition of marine and intertidal ecosystems. .

DEKSSTATION TER WERELD (1843)



ERFENIS VAN VADER EN ZON VAN BENEDEN

Van het station van Pierre-Joseph van Beneden ¹ valt vandaag niets meer te bespeuren. De haven van Oostende is immers door de jaren heen uitgebreid. Ook het station van Edouard van Beneden ² haalde het einde van de 19^{de} eeuw niet. Toch bleef de "geest" van de van Benedens ronddwalen op de Oostendse oosteroever. Het was de Leuvense professor Gustave Gilson (1859-1944), een discipel van P.-J. van Beneden en zelf begenadigd zeeonderzoeker, die eerst in een oesterput, zoals zijn leermeester, aan onderzoek deed ³ en later, in 1927, de eerste directeur werd van het Zeewetenschappelijk Instituut (ZWI). Dit instituut kende in 1970 zijn vervolg in het Instituut voor Zeewetenschappelijk Onderzoek (IZWO) dat op zijn beurt in 1999 werd uitgebreid tot het huidige Vlaams Instituut voor de Zee (VLIZ). Het VLIZ is nu één van de instituten van de InnovOcean site en kijkt vanuit zijn kantoren op wat ooit het eerste mariene onderzoeksstation ter wereld was!



Thanks to administrative openness and the need for assessment of socially feasible objectives, this kind of policy-supporting information and data receives growing attention.

For instance, **indicators** are increasingly used as an instrument for the exploration, planning, implementation and evaluation of policies. Moreover, they are very useful as a link between policies and scientific research. In 2010, Figures & Policy formulated indicators within the scope of the development of a Long-Term Vision for the Scheldt estuary for 2030 and for Integrated Coastal Zone Management (ICZM).

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

Commissioned by the Maritime Access division (Department Mobility and Public Works of the Flemish Government), VLIZ selected a set of indicators to monitor policy-relevant issues within the scope of the Long-Term Vision (LTV) and the Target 2030 for the Scheldt estuary. The selection of the set was attuned to the entire cross-border Scheldt estuary in consultation with scientists and policy makers.

Overview of the information summary sheets: Indicators Long-Term Vision for the Scheldt estuary

Indicators for the Scheldt estuary. Commissioned by the Maritime Access Division, project group EcoWaMorSe, Flemish-Dutch Scheldt Commission. VLIZ Informationsheets. Flanders Marine Institute (VLIZ): Oostende.



© VLIZ - Deleer
200: Threats to biodiversity



© VLIZ - Coffin
201: Safety against flooding



© VLIZ - Deleergh
202: Socio-economic importance of ports



© VLIZ - Fockelley
203: Environmental effects of ports and shipping



© VLIZ - Fockelley
204: Surface water quality



© VLIZ - Fockelley
205: Soil interfering activities



© VLIZ - Deleergh
206: Socio-economic importance of residential tourism



© VLIZ - Fockelley
207: Morphology and dynamics in the estuary



© VLIZ - Deleergh
208: Status of species and habitats



© VIZ - Debergh

209: Loads of pollutant substances



© Wenz

210: Protection and development of natural areas



© VIZ - Foculday

211: Population pressure



© VIZ-Delva

214: Opportunities for nature



© SIC-Eijlers

215: Fisheries



© van der Meer

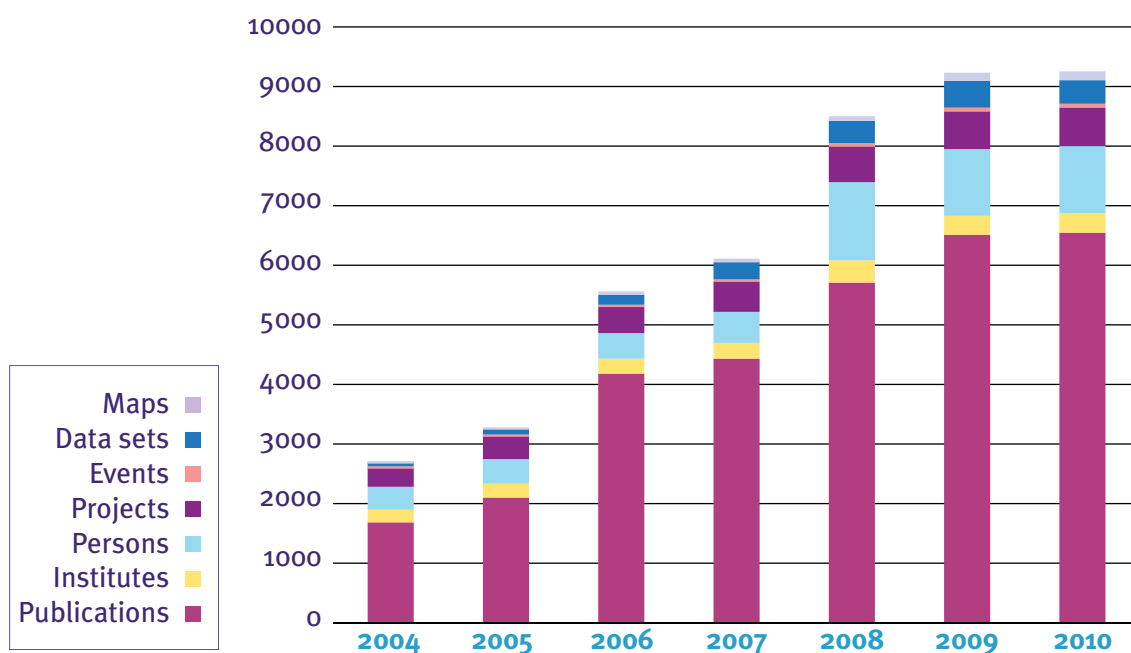
216: Use of the instrument 'indicators for the Scheldt estuary'



© SIC-Katernwint

217: Societal response and cooperation

The 45 selected measurements and the set of indicators developed from them primarily fit in with the principal issues of **Safety, Naturalness and Accessibility** of the Working Group on Research & Monitoring of the Flemish-Dutch Scheldt Commission (VNSC). But the other functions of the estuary were taken into account as well, such as recreation and tourism, fisheries and agriculture, living and working. The indicators were completed with data and technical and explanatory descriptions (technical and fact sheets, graphs, maps). The set of indicators is made available on the ScheldeMonitor website and is linked to data, publications, graphs and tables, data providers and authors. The indicators and summaries can be consulted in their entirety on the web page www.scheldemonitor.be/indicatoren.php.



The **ScheldeMonitor** is the Flemish-Dutch knowledge and information system supporting research and monitoring of the Scheldt estuary. As an initiative of the Maritime Access division (Department Mobility and Public Works of the Flemish Government) and the Dutch Ministry of Waterways and Public Works, the ScheldeMonitor has developed into the largest virtual information centre available online. This policy-supporting system can be searched for institutes (330), persons (1,123), projects (648), events (63), maps (148), data sets (395) and publications (6,547).

Integrated Coastal Zone Management

The Coordination Centre for Integrated Coastal Zone Management (CC-ICZM) monitors relevant policy issues (socioeconomy, nature, ecology) for the Belgian coastal area by means of a set of sustainability indicators. The sustainability indicators have been developed thanks to collaboration with scientists, civil society and policy makers, and can be consulted online through the **Coastal Barometer** (www.vliz.be/projects/indicatoren). This barometer indicates whether we are heading for a more sustainable situation in the coastal area. In this case VLIZ acts as a data centre and develops the website. In addition, VLIZ is active in the editorial board of the triennial publication '**The Coastal Compass**', in which a group of experts examines trends.

The **PEGASO** project started in February 2010. A total of 24 partners from 15 countries have joined forces to support Integrated Coastal Zone Management (ICZM) of the Mediterranean and Black Sea.

PEGASO is based on the existing capacity in the region to reach a common approach in support of the policy in the Mediterranean and Black Sea, following and in line with the ICZM Protocol for the Mediterranean Sea. Its task includes the construction and support of an ICZM Platform that connects research results and policy demands; the refinement of efficiency and user-friendly instruments for performing sustainability evaluations in the coastal area; the implementation of a Spatial Data Infrastructure (SDI) for the organisation and standardisation of spatial data. The project will be completed in 2014.

Within the scope of integrated coastal zone management (ICZM), the Figures & Policy department offers support to the SPINCAM project in 2010 as well. Five countries (Panama, Colombia, Ecuador, Peru and Chile) collaborate on the development of common indicators for integrated coastal zone management on the western coasts of South America. The **SPINCAM** project is a collaboration between IOC/UNESCO and the member states of the Permanent Commission for the South Pacific (CPPS) with co-financing from the Flanders-UNESCO Trust Funds.

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 fishing industry. It nevertheless appears that historical fisheries statistics reflecting the socioeconomic importance and scale of fisheries in Belgium have been published very dispersedly and are available only fragmentarily.

With the 'A century of sea fisheries in Belgium' project, 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 and value of the landings** of the different fish species were dealt with. In 2009 the results were made available online on the VLIZ website (www.vliz.be/EN/Figures_Policy/Belgian_Sea_Fisheries). On the basis of this data rescue and integration, the scientific article 'Fishing in the past: Historical data on sea fisheries landings in Belgium' appeared in the journal *Marine Policy* (Lescrauwaet et al. 2010. *Mar. Policy* 34(6): 1279-1289) as did the more extensive Working Paper 'Historical marine fisheries data for Belgium' (Lescrauwaet et al. 2010. Fisheries Centre Working Paper Series, 2010-o8. University of British Columbia).

The **Belgian fishing fleet** has undergone an interesting evolution too: sloops, boats and ships changed owner, immatriculation number or port of registration, and were converted or equipped with more efficient technology. Because of these rapid changes it is not all that obvious to follow the characteristics or lifetime of a given ship from its construction to the moment the ship is taken out of service. In 2009 and 2010, VLIZ collected information on the characteristics of individual sloops, boats and ships. Recognised and reliable sources were mapped and described for that purpose. This information was standardised and collected in a Belgian fishing fleet database (www.vliz.be/cijfers_beleid/zeevisserij/fleet.php).

This 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. The cooperation exceeds the mere collection of data and information.

Belgian fishing fleet dynamics incorporated in online database

The 'A century of sea fisheries in Belgium' project is intended to inventory, describe, quality check, integrate and redistribute all available historical data and scientific information on sea fisheries in Belgium. The life and changes in characteristics of a certain ship can now be searched per ship for fishing vessels active as from 1929. © Fleet database (VLIZ, 2010)



Samenvatting levensloop:

Grote atalen bokkenvisser, in 1975 gebouwd voor rederij Calcoen-Vermote. Het komt in de vaart als de N.15 "De Kottens". Op 23.11.1986 wijzigde het immatriculatie-nummer van N.15 naar Z.15 en krijgt het schip de naam "Stephanie" (na verkoop aan S.V.B.A. Rederij Stephanie). Op 19.09.1993 veranderen nummer en naam opnieuw, na verkoop aan rederij S.V.B.A. Blue Angel, naar O.15 "Zilvermeeuw". Het jaar daarom komt het schip in handen van bedrijf O.P.A.O. Totaal: 10 foto's






Karakteristieken schip

Bouwerij: NV West-Vlaamse Schepenerven (Oostkamp)/SV Scap (Oostende)
 Bouwjaar: 1975
 Schip-Id: 1851
 Dit schip is nog in de vaart (anno 31.12.2009).

	1975	1985	1990
Inschrijvingsplaats	Nieuwpoort	Oostende	
Immatriculatie-nummer	N.15	O.15	
Naam	De Kottens	Zilvermeeuw	
Roepnaam	OPAO		OPAO
Bnummer		Z.15	
Regnummer			01 00180
Regnummer 2			15627
Internationale zeincode			
Bruto tonnage	224,37		
Netto tonnage	83,45		
Lengte	34,8		
Breedte	7,65		
Motormerk	Anglo Belgian Corporation		
Aantal motoren	1		
Motor kW			

On 4 February and 25 November 2010 the Flemish Heritage Institute (VIOE) and VLIZ organised two open house days as to the history of Belgian/Flemish sea fisheries. Anyone who wanted to make a concrete contribution regarding this issue – in the broadest sense of the word – was welcome: the history of Belgian fisheries at sea and in the Scheldt estuary, the status of fish stocks, the landings, catches and value of landings, the evolutions of the fleet and of the processing and preservation of fish, and fish consumption throughout the centuries. The results of both open house days are publicly available at www.vliz.be/events/zeeverisserij/HistorischeZeevisserij_2010.11.25.php.

Alien species

The alien species in marine and brackish waters along the Belgian coast and in the adjacent estuaries are closely monitored in the project 'Non-indigenous species of the Belgian part of the North Sea and adjacent estuaries'. This is an example of provision of policy-relevant information at the level of Flanders/Belgium in which VLIZ (Data Centre department, Infodesk and Figures & Policy) offers support to and collaborates with a consortium of experts from various research institutions. The results from this project are used for the evaluation of the (possible) impact of alien marine and estuarine species within the scope of national and European policy measures.

VLIZ Alien Species Consortium – 2010

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 2010:



© van Bogaert

35: Oriental shrimp - *Palaemon macrodactylus*



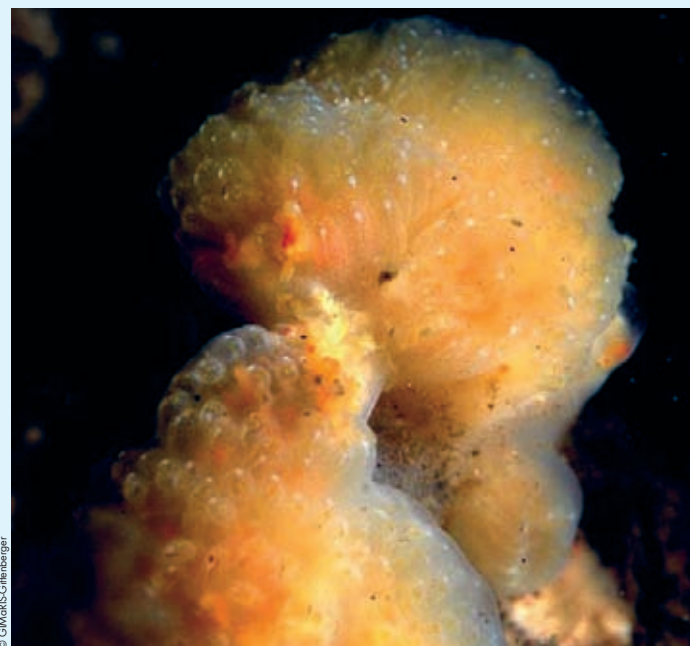
© De Blauwe

38: *Bugula simplex*



© NMWAC Harris

37: *Garveia franciscana*



© G. W. S. Schreijer

36: *Aplidium glabrum*

The list currently includes 68 non-indigenous marine and estuarine species. A total of 4 new fact sheets were created in 2010. At present, 38 alien species fact sheets are available on the VLIZ website www.vliz.be/EN/Figures_Policy/Alien_Species. The sheets contain information on the life cycle and ecology of the species, the manner of introduction and distribution, possible or observed impact of the species on the environment and possible measures. The information focuses on the local situation (Flanders - Belgium) within a European and international context. Correct taxonomic information is supplied through a link to the World Register of Marine Species (WoRMS; also see Data Centre chapter). Pictures, distribution maps and relevant links to sources and other websites supplement the information for the user.

Seastats

The Seastats section of the VLIZ website (www.vliz.be/cijfers_beleid/zeecijfers) 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 'sea question' with the corresponding extensive answer as well. The Seastats website was launched end 2007 with a total of 1,500 statistics. Now it comprises nearly 3,000 statistics.

Compendium for Coast and Sea

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

By creating a 'Compendium for Coast and Sea', VLIZ intends to compile all this objective and scientifically founded information and data from Flemish marine and maritime research in one report. The Compendium's integrated and cross-border character (it also crosses the boundary between land and sea) will contribute to increased communication inside and outside the fragmented marine scientific landscape, and will increase the visibility and accessibility of marine scientific research. This way the Compendium will also serve as an instrument in the pursuit of an Sustainable and Integrated Maritime Policy and Coastal Zone Management.

In 2010, VLIZ started to draw up a blueprint of the Compendium, or what an integrated knowledge document on the socio-economic, ecological and institutional aspects of the coast and sea in Flanders and Belgium should look like. It consulted as many parties and potential end users as possible in the process. The final version of the blueprint is expected in June 2011. A first version of the Compendium is planned for 2013.

The aim is to publish a printed version of the document every five year and to create a website as an interactive data carrier. A first version is planned for the end of 2012. More information can be found at www.vliz.be/NL/Cijfers_Beleid/Compendium.



Fac



ilities Facilities



Mud sagittaria - *Sagittaria troglodytes* © Decler

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

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

VLIZ provides researchers with logistical support by ensuring the management, maintenance and manipulation of research infrastructure and equipment. André Cattijssse and a marine technician are responsible for the coordination of the scientific and educational programme of the Flemish research vessel Zeeleeuw, the rigid inflatable boat (RIB) Zeekat and the use of a large collection of measuring and sampling equipment (employable on the Zeeleeuw or for use on other research vessels). In addition, VLIZ puts greenhouses for experimental work (De Haan) and storage space (Ostend) at the disposal of Flemish scientists. Since 2002, VLIZ has provided a monthly monitoring trip along 9 stations in the Belgian part of the North Sea. In 2010 a great deal of time and energy were spent on preparing the construction of the new research vessel Simon Stevin and the alteration of the land-based facilities at Halve Maan on the East Bank of Ostend, purchased in 2009.

Scientific and educational excursions

R/V Zeeleeuw is the Flemish research vessel that is made available to the local and international marine research community. The ship can be deployed for sampling in Belgian coastal waters and the Scheldt estuary. DAB Fleet (Internally Autonomous Agency for Maritime Services & Coast, MDK) operates the Zeeleeuw, pays the operational costs and provides the crew. VLIZ takes care of the coordination of the scientific programme and manages the research equipment. This way, 1,470 sailing hours are made available annually.

If necessary, **other vessels from the Flemish fleet** can also be used for marine scientific research. This is the case for research and monitoring activities on the river Scheldt carried out with Veremans, Scheldewacht, Parel I and Scaldis. Every now and then the Flemish hydrographic vessel Ter Streep, Zeearend and Zeehond are made available for research assignments.

The **Zeekat** is an RIB (rigid inflatable boat) that can operate both from the Zeeleeuw and autonomously, e.g. in shallow waters or between the pylons of wind farms.

Research vessel Zeeleeuw in great demand in 2010

By mid-2010 it turned out that the demand for time at sea by Flemish marine scientists far exceeded the number of scheduled sailing hours. In June 2010, VLIZ opted to give priority to excursions for scientific research programmes over the monitoring trips that take place at the behest of the government. This way the bill eventually tallied at the end of the year.



© David

In calendar year 2010 a total of 292 days were spent at sea on scientific research, 151 of which with the Zeeleeuw, 57 with the Zeekat and 84 with other ships of DAB Fleet.

Number of days at sea for research purposes:	2004	2005	2006	2007	2008	2009	2010
R/V 'Zeeleeuw'	155	151	122	150	162	166	151
RIB 'Zeekat'	37	45	35	51	39	32	57
'Third' vessels	3	44	41	38	37	36	84
Total number of days at sea for research purposes	195	240	188	239	238	234	292

In 2009, the Zeeleeuw sailed for 1,690 hours for scientific research and education, while a maximum of 1,470 hours a year are scheduled. Not only are more excursions requested, but the average duration of an excursion also has risen from 7.5 hours to 10.2 hours since 2001. Another trend is that more and more time at sea is spent on monitoring tasks carried out at the behest of the government (e.g. within the scope of the Water Framework Directive and concessions for wind farms). This considerable increase in the number and duration of boat trips in 2009 resulted in an overrun of the budget. In view of the current financial restrictions of the Flemish Government, DAB Fleet could not let the operational costs of the Zeeleeuw increase as much in 2010. It was already clear in June 2010 that 400 hours of requested time at sea with the Zeeleeuw would have to be saved in 2010. Of course, cancelling excursions that have already been requested is hard. That is why VLIZ opted to give priority to excursions for scientific research programmes over monitoring trips at the behest of the government in the second half of 2010. The bill eventually tallied at the end of the year and the number of scheduled sailing hours was not exceeded.

Out of 175 originally planned trips, 143 were carried out in the end (7 of which were continuous trips of consecutive days including nights). The Zeeleeuw eventually sailed for 1,379 hours (or 94% of available time), and 394 scientists and 485 passengers (pupils, students, divers ...) embarked. Nineteen different research groups made use of the Zeeleeuw within 23 projects (see table). Education was the principal objective in twenty-five of the 143 trips (17%).

During the trip a computer network on board the Zeeleeuw registers the navigation data as well as meteorological and oceanographic (physicochemical) data. These are kept and managed in the [MIDAS database](http://www.vliz.be/vmdcdata/midas), which stands for Marine Information and Data Acquisition System (www.vliz.be/vmdcdata/midas). At the end of 2010 the system included 7,704,497 records. MIDAS also helps to plan the cruises and to register the ship's activities.

Research and educational projects with RV 'Zeeleeuw' in 2010

Research groups		trips
VLIZ	Belgian Part of the North Sea	10
VLIZ	Monitoring harbour porpoise	3
UGent – Marine Biology	WESTBANKS – Role of diversity, functionality and density of macrobenthos in the functioning of a seafloor	11
UGent – Marine Biology	The importance of artificial hard substrates in the North sea for the ecology of the ichthyofauna	40
UGent – Marine Biology	Biotic interactions across size classes as structuring factors for marine benthic ecosystem functioning	1
UGent – Marine Biology	Monitoring EU Water Framework Directive	15
UGent – ECOTOX	As-MADE – Assessment of Marine Debris on the Belgian Continental Shelf: occurrence and effect	4
UGent – RCMG	Small-scale sediment dynamics near objects in shallow water and the effects of hydrodynamic forcing conditions	2
UA – EBT	Bioaccumulation of micropollutants	2
UA – MITAC	SHIPFLUX - Atmospheric deposition fluxes to the Belgian marine waters originating from ship emissions	7
ULB – Lab Biologie Marine	MICROMET - Microbial diversity and metal fluxes in contaminated North Sea sediments	3
INBO	Monitoring marine and coastal birds in Flanders	26
ILVO-Fisheries	Monitoring wind farms	1
ILVO-Fisheries	Micropollutants in North Sea shrimp	1
ILVO-Fisheries	Pelagic fish and zooplankton in the Belgian part of the North Sea	24
ILVO-Fisheries	PopPhyl – Population phylogenomics: linking molecular evolution to species biology	1
ILVO-Fisheries	WAKO II - An integrated impact assessment of trammel net and beam trawl fisheries	3
ILVO-Fisheries	Wind farms as spawning and nursery areas	3
VIOE	Archeological evaluation of ship wrecks	7
BMM	Monitoring hard substrates wind farms	17
BMM	Monitoring EU Water Framework Directive	2
BMM	Calibration multi-beam images	2
KBIN – Invertebrates	Fauna of natural hard substrats	1

Educational projects	trips
VLIZ & DAB Fleet: Planet Ocean	5
Flemish Radio & Television (VRT) – Ketnet / Karrewiet	1
VRT – CANVAS / Beagle	3
Antwerp Maritime Academy	4
Vrije Universiteit Brussel – M.Sc. Ecological Marine Management Programme (EcoMaMa)	2
UNESCO/IODE Project Office for IODE – Ocean Teacher Academy	1
Katholieke Universiteit Leuven – M.Sc. Biology	1
Ghent University – M.Sc. Marine Biodiversity and Conservation (EMBC)	5
Universiteit Hasselt – B.Sc. Biology	1
Vrije Universiteit Brussel – M.Sc. Biology	2

Construction of the ship Simon Stevin can go ahead after the final design check

Shipbuilder “Damen Shipyards Gorinchem” refined the design of the new Flemish research vessel Simon Stevin in late 2010. This was done in consultation with the Flemish shipowner DAB Fleet and VLIZ, who will monitor the construction closely.



© DAB Vloot

Flanders builds new ultramodern research vessel ‘Simon Stevin’

In July 2010, Flemish minister of Science and Innovation Ingrid Lieten and minister of Mobility and Public Works Hilde Crevits decided to invest 11.5 million together in the construction of a new Flemish research vessel to replace the Zeeleeuw. The Simon Stevin will be the most modern coastal research vessel in Europe.



© Damen Shipyards

New research vessel ‘Simon Stevin’

Flemish minister of Science and Innovation Ingrid Lieten and minister of Mobility and Public Works Hilde Crevits decided to invest 11.5 million together in the construction of a new Flemish research vessel to replace the Zeeleeuw. Plans for the construction of a new ship date back to 2007. Yet on 5 August 2010 the Flemish Government could consign the construction to the Dutch shipbuilder “Damen Shipyards Gorinchem” following an international invitation to tender. The company immediately started to refine the design (October-December 2010). This was done in close consultation with the Flemish shipowner DAB Fleet and VLIZ, who will monitor the construction closely.

The new ship will be christened “Simon Stevin” and it will be the most modern coastal research vessel in Europe. The ship will have a length of 36 m, a width of 9 m and a draught of 3 m. With its maximum speed of 12 knots, it will be used for marine scientific research in Belgian waters and in the southern North Sea. The ship’s hull will be built in Romania and finished in the Netherlands. According to the information provided by the shipyard the vessel could be completed by mid-2012. DAB Fleet will crew and maintain the ship, while VLIZ will ensure the scientific coordination. The Simon Stevin will also be used for educational purposes.

Investment subsidy

Since 2008, VLIZ has received an additional investment subsidy of 1.1 million a year from the Flemish Government, Department of Economy, Science and Innovation (EWI). A sum of 500,000 EUR was set aside for funding the new research vessel Simon Stevin in 2010 (and also during the coming years). In addition, the subsidy was also used in 2010 to purchase scientific equipment to be integrated in the hull of the new vessel.

Within this scope a Hydrographic Single Beam Echo Sounder (ODOM CV300, with dual frequency transducer) was purchased. This instrument is used to determine the water depth by means of two frequencies so that soft and hard seabeds can be distinguished. We also purchased an Acoustic Doppler Current Profiler (ADCP Teledyne Workhorse Mariner 600kHz) to be fixed to the Simon Stevin’s hull. This instrument generates current profiles (direction and speed of the current) of the water column beneath the ADCP.

Equipment

VLIZ manages a wide range of marine scientific sampling equipment and measuring instruments that can be used by the marine research community. In the VLIZ buildings researchers can furthermore make use of (temporary) storage of samples and sampling materials.

In 2010, VLIZ purchased a rosette with 6 Niskin bottles and accompanying CTD (SBE19plusV2). A new miniature CTD (CTD48M) is provided to be mounted to other sampling equipment, e.g. the multicorer and sampling nets owned by VLIZ, or the ROV of the RCMG of Ghent University. In addition, a stainless steel tripod was acquired onto which the ADCP WH600 is mounted. The assembly can then be placed autonomously on the seabed for a while.

Land-based facilities

The purchase of the land-based facilities at “Halve Maan” in the port of Ostend was finalised in January 2009. They are located at walking distance from the VLIZ head offices. The entire complex consists of 4 hangars, exterior space and a dwelling. When the building permit was approved in June 2010, we started drawing up a call for tenders as to the renovation work (renovation of roof and façade, new fence, levelling of the site and installation of basic water and electricity facilities), which was made public at the end of 2010. Work will begin in the course of 2011.

Furthermore, a concession agreement was concluded with Coastal Division (MDK, Flemish Government) and preparations were made for establishing a study group of possible users who are to provide further advice regarding the concrete detailed design and specific function(s) of these premises.

De Haan greenhouses

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

Since 2000 a cooperation agreement has been in place between VLIZ and the Coastal Division of MDK (Flemish Government). The greenhouses and surrounding area have been made freely available by the Coastal Division since then, and support by a caretaker is provided as well. VLIZ takes care of the coordination of the scientific programme and the research equipment required for experiments.

In the spring of 2010, Coastal Division announced that they wished to discontinue the management and intended to transfer the right of use to VLIZ. A number of research groups (e.g. INBO, ANB, UGent-TEREC and UA-MITAC) subsequently underscored the usefulness of the infrastructure and advocated the conservation of this infrastructure for scientific research. A concession transfer acceptable to both parties was negotiated in consultation with the Coastal Division (planned for early 2011)

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

■ **Physico-chemical parameters**

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

■ **Water sampling**

- Niskin bottle 10 litre
- Niskin bottle 5 litre
- GO-FLO
- Van Dorn bottle
- Carousel Water sampler (6 Niskin 4 litre and accompanying CTD SBEplusV2)

■ **Sediment sampling**

- Van Veen grab
- Reineck Box Corer
- Bowers & Connelly multicorer
- Hamon grab

■ **Biological sampling**

- Apstein Plankton Net
- Bongo net
- Neuston net
- MIK net
- WP2 plankton net
- Trawl plankton net
- Plankton pump
- Hyperbenthic sledge
- Beam trawl
- Ottertrawl
- Pelagic trawler
- Van Veen grab
- Reineck Box Corer
- Hamon grab
- Bowers & Connelly multicorer
- Passive Acoustic Monitoring (PAM System)

■ **Miscellanea**

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

■ **Storage**

- Warehouses
- Freezers
- Cold store - Core Repository

Monitoring in the Belgian part of the North Sea

In August 2002, VLIZ started monitoring 9 stations in the Belgian part of the North Sea. Every month water samples are taken and CTD measurements are carried out with the Zeeleeuw. The samplings allow to measure turbidity, nutrient content and chlorophyll-a concentrations in cooperation with the research groups performing the analyses.

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

VLIZ monitoring dates in 2010

- (maintenance)	13 July 2010
- (maintenance)	23 August 2010
15 March 2010	20 September 2010
14 April 2010	11 October 2010
17 May 2010	18 November 2010
22 June 2010	13 December 2010

Projects



André Cattrijsse, research infrastructure manager at VLIZ, is also chairman of ERVO (European Research Vessels Operators – www.eurocean.org/np4/ervo). In that capacity he ensured the co-organisation of the annual **ERVO** meeting, which took place at the National Oceanography Centre (NOC) in Southampton, England, from 4 to 6 May 2010. At this meeting 25 research vessel operators and managers from 13 European countries came together to exchange experiences, share information and examine opportunities for cooperation.



The European FP7 project called **EUROFLEETS** 'Towards an alliance of European research fleets' entered its second year in 2010. With the help of 24 partners (marine research institutes, universities and SMEs) from 16 European countries it aims to promote and bring about a common and more efficient deployment of research vessels. In 2010 researchers from European universities and research institutes could apply for fully sponsored time at sea aboard one of the Eurofleets vessels within the scope of this project. VLIZ helped to distribute this call. Two Belgian research projects received a positive evaluation and were allocated additional time at sea as coordinators of (inter)national projects.

Data c



Data centre centre



Common prawn - *Palaemon serratus* © Decler

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

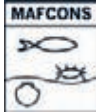
- ❑ DATA AND INFORMATION CENTRE
- ❑ DOCUMENTING
- ❑ ARCHIVING
- ❑ INTEGRATING
- ❑ REDISTRIBUTING
- ❑ INTERNATIONAL STANDARDS
- ❑ SERVICE CENTRE
- ❑ WEBSITES

The Flanders Marine Data and Information Centre (VMDC) employed 16 IT specialists and scientists at the end of 2010. The data centre's task is to support scientists, policy makers and the public at large with regard to the various aspects of marine data management. To perform this task to a maximum extent, a knowledge system, a data archive, and several databases, registers and websites have been developed:

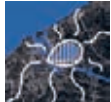
- VMDC developed the IMIS **knowledge system** to provide an as accurate as possible picture of the Flemish marine scientific landscape. Information on data sets, publications, persons, institutions, projects, events, maps and infrastructure is stored in this system in a structured manner. This system can be searched online at www.vliz.be/imis.
- Scientific data are unique and need to be protected against loss. We therefore developed the Marine Data Archive (MDA), a secure online **data archive** where researchers can archive and describe their data files and, if desired, share them with others.
- Integrated **databases** (IMERS, EurOBIS, ScheldeMonitor data portal...) are used to collect data of Belgian, European and international projects and measurement campaigns. After a thorough quality check and standardisation most data are made available online.
- **Registers** of marine species and place names support the quality check. The Aphia taxonomic register contains the names of all known marine species and is used worldwide as a standard list by numerous organisations. The VLIMAR place name register fulfils the same role for geographic names.
- The knowledge system, data archive, databases and registers are all disclosed through **websites**, but we also develop websites as a means of communication for scientific projects and institutions. You can find a complete list of all websites developed and/or hosted by VLIZ in the table on pages 111 to 115 (also available online at www.vliz.be/vmdcdata/wlist.php).
- 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

10th Seabird Group Conference  www.vliz.be/events/seabirdconference2009	African Marine Atlas  www.africanmarineatlas.net	Antarctica expedition  www.vliz.be/projects/ugent-arctica	ArctEco  www.marbef.org/projects/arcteco	Arctic Register of Marine Species  www.marinespecies.org/arms
Ascidacea  www.marinespecies.org/ascidiacea	ASFA  www.vliz.be/events/asfa	As-made  www.vliz.be/projects/as-made	BBDO  www.marbef.org/projects/bbdo	Het Belgica Genootschap  www.belgica-genootschap.be
Belgian Register of Marine Species  www.marinespecies.org/berms	BeNCoRe  www.bencore.be	BEQI  www.beqi.eu	Bewremabi  www.vliz.be/projects/bewremabi	BIOFUSE  www.marbef.org/projects/biofuse
BIOMARE  www.biomareweb.org	Brachiopoda  www.marinespecies.org/brachiopoda	BWZee  www.vliz.be/projects/bwzee	Canadian Register of Marine Species  www.marinespecies.org/carms	Cetacea  www.marinespecies.org/cetacea
CLAMER  www.clamer.eu	Class@Desert  www.vliz.be/projects/classatdesert	Class@Oceans  www.vliz.be/projects/classatoceans	Class@Oceans II  www.vliz.be/projects/classatoceansII	CoCaRDE  www.cocarde.eu
COD  www.vliz.be/events/cod	Copepods  www.marinespecies.org/copepoda	CPPS  w2.vliz.be/vmdcdata/cpps	Cumacea  www.marinespecies.org/cumacea	DEEPSETS  www.marbef.org/projects/deepsets
DIMAS  www.vliz.be/projects/dimas	Dunes and Estuaries 2005  www.vliz.be/events/de2005	Duurzaamheidsbarometer voor de kust  www.vliz.be/projects/indicatoren	EAS  www.easonline.org	Echinoidea  www.marinespecies.org/echinoidea

Ecotox database  www.vliz.be/vmdcdata/ecotox	Ecotoxicology Wiki  www.coastalwiki.org/coastal-wiki/Portal:Ecotox	ED North  www.vliz.be/projects/endis/EDNorth.php	EMODnet Biology  bio.emodnet.eu	ENCORA  www.encora.eu
ENDIS-RISKS  www.vliz.be/projects/endis	ERMS  www.marbef.org/data/erms	ESPOL  http://imis.cti.espol.edu.ec	EURASLIC  www.euraslic.org	EurOBIS  www.marbef.org/data/eurobis
EurOCEAN 2010  eurocean2010.eu	Expeditie Zeeleeuw  www.expeditiezeeleeuw.be	FAQ  www.vliz.be/vmdcdata/faq	Foodwebio  www.marbef.org/projects/foodwebio	GBIRM  www.marbef.org/projects/gbirm
Hemichordata  www.marinespecies.org/hemichordata	Hydrozoa  www.marinespecies.org/hydrozoa	IMERS  www.vliz.be/vmdcdata/imers	IMIS  www.vliz.be/imis	INRAM  www.vliz.be/projects/inram
IOC Tsunami  www.ioc-tsunami.org	Isopoda  www.marinespecies.org/isopoda	Koers naar zee  www.koersnaarzee.be	Coastal Atlas  www.kustatlas.be	LargeNet  www.marbef.org/projects/largenet
LecoFish  www.lecofish.be	Lifewatch  www.lifewatch.eu	Littoral myriapods  www.marinespecies.org/myriapoda	Macrobel  www.vliz.be/vmdcdata/macrobelt	MAFCONS  www.mafcons.org
Mangroves  www.vliz.be/vmdcdata/mangroves	MANUELA  www.marbef.org/projects/manuela	MarBEF  www.marbef.org	Marbena  www.vliz.be/marbena	MARBIOL  www.marinebiology.ugent.be

Marble  www.vliz.be/marble	MARBOUND  www.vliz.be/vmdcdata/marbound	MarFish  www.marbef.org/projects/marfish	Marine Biodiversity Wiki (MarBEF coastal Wiki)  www.marbef.org/wiki	Workshops Taxonomy Workshops  www.marinespecies.org/workshop
Maritime Archeology  www.maritieme-archeologie.be	MarPace  www.marbef.org/projects/settlement	MARPLAN  www.marbef.org/projects/marplan	MARS  www.marsnetwork.org	MASDEA  www.vliz.be/vmdcdata/masdea
Marien Data Archief (MDA)  mda.vliz.be	Monitoring Network Flemish Banks  www.vliz.be/NL/Datacentrum/MVB_intro	Gulls in the city  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/NL/Cijfers_Beleid/Niet_inheemse	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 school 010  www.oceanschool.eu	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.oostendooosteroever.be	Ophiuroidea  www.marinespecies.org/ophiuroidea
Pegaso  www.pegasoproject.eu	PESI  www.eu-nomen.eu/pesi	Phoronida  www.marinespecies.org/phoronida	Placozoa  www.marinespecies.org/placozoa	Planet Ocean  www.planetoocean.eu www.planeteeze.org

POGO	Porifera	Pycnabase	QUEST4D	RAMA
				
www.ocean-partners.org	www.marinespecies.org/porifera	www.marinespecies.org/pycnobase	www.vliz.be/projects/quest4d	www.vliz.be/projects/rama
RAMS	Remipedia	Rhabitophora	Rosemeb	SAIL
				
www.scarmarbin.be/rams.php?p=search	www.marinespecies.org/remipedia	www.marinespecies.org/rhabditophora	www.marbef.org/projects/rosemeb	www.vliz.be/projects/sail
Sailcoast	SCAR-MarBIN	ScheldeMonitor	Schelde Monitor Data Portal	Sea Level Station Monitoring Facility
				
www.sailcoast.eu	www.scarmarbin.be	www.scheldemonitor.org	www.scheldemonitor.be/dataportal	www.vliz.be/gauges
SMEBD	SPICOSA Wiki	Spuikom website	STARDUST	STARDUST 2
				
www.smebd.eu	www.coastalwiki.org/spicosa/Portal:SPICOSA	www.vliz.be/spuikom	www.vliz.be/projects/stardust	www.vliz.be/projects/stardust2
SWG	TISBE	To sea or not to sea	THESEUS	Trophos
				
www.strandwerkgroep.be	www.vliz.be/vmdcdata/tisbe	www.vliz.be/marcol	www.theseusproject.eu	www.vliz.be/projects/trophos
Tsunami Sea Level Station Monitoring Facility	URMO	VLIMAR	VLIZ	VLIZ Educational page
				
www.vliz.be/vmdcdata/iodc	www.marinespecies.org/urmo	www.vliz.be/vmdcdata/vlimar	www.vliz.be	www.vliz.be/educatie
VLIZ photo gallery	VLIZ Marine Library	Bird Sanctuary Ostend	Bird victims	Flanders Hydraulics Research
				
www.vliz.be/vmdcdata/photogallery	www.vliz.be/NL/Zeebibliotheek	www.vogelopvangcentrum.be	www.vliz.be/vogelslachtoffers	www.vliz.be/imis/waterbouwkundiglaboratorium

Westbanks



www.vliz.be/projects/westbanks

WETENSCHATTEN



www.wetenschappen.be

WOD98



www.vliz.be/vmdcdata/wod98

WOG



www.vliz.be/projects/wog

World Register of Marine Species



www.marinespecies.org

Wreck site



www.wrecksite.eu

Beach nourishment



www.vliz.be/projects/beachsup

Seastats



www.vliz.be/cijfers_beleid/zeecijfers

Zeekrant



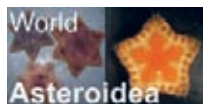
www.zeekrant.be

Zeeleeuw monitoring cruises



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.

All information on the **Flemish marine scientific landscape** can be found in the **IMIS** information system (or Integrated Marine Information System). This system contains information on persons and institutions, as well as literature, projects, events, data sets, maps and infrastructure. All information units are interconnected. IMIS additionally feeds several (inter)national (project) websites; consequently, the system also contains Dutch (ScheldeMonitor), European (Encora, MarBEF and EMODnet) and international (WoRMS) marine information. The IMIS literature module is used by the VLIZ library as well as the information centre of the Hydraulic Laboratory and the Research Institute for Nature and Forest (INBO) as a library system.

At the end of 2010, IMIS contained the description of 21,180 persons, 8,965 institutes, 3,196 projects, 160,273 publications, 2,287 events, 2,666 maps and 55 research devices and infrastructures. In addition, over 1,985 datasets from various marine research disciplines with an international scope are documented.

Since 2007, VLIZ has developed an **Open Marine Archive** (OMA) and thus joined the worldwide movement of the 'Open Archives Initiative' (OAI) to make scientific **publications** completely **freely and permanently available** through the Internet. VLIZ set the target of making the entire Flemish-Belgian scientific output digitally available. In 2010 the number of references available in the Open Marine Archive increased by about 1,600 publications to more than 6,890. The digital version of these publications is freely available at the VLIZ website (www.vliz.be/EN/Marine_Library/Library_OMA), but is also picked up by harvesters of the Open Archives Initiative (OAI) such as Google Scholar, AVANO and OAIster. The OMA references were downloaded 53,818 times altogether in 2010.

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. For each file you want to upload in the MDA, metadata that describe the specific content of the file need to be provided too. The user determines to whom the data files should be made available: should they be private, shared within an institute or project, or open to all registered users of the MDA system? 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 9,562, totalling 28.4 GB of data by the end of 2010. Some forty new registered users joined in 2010, which brought the total to 285, all of them coming from 125 institutes. The MDA was used within the scope of 68 ongoing projects.

Measurement data obtained from sampling campaigns by different Belgian research projects are **integrated** by VLIZ into the IMERS (Integrated Marine Environmental Readings and Samples) data system. **IMERS** is also the instrument used to provide data to the IDOD database of MUMM (with regard to the quality of the marine environment) as contractually defined by the Belgian Science Policy for North Sea projects financed by the latter. IMERS was extended in 2010 with approx. 142,000 data from the INRAM and OMES projects. This brings the total number of records in IMERS to almost 1.6 million.

Aphia is a **taxonomic database of marine species**. The system comprises various regional registers as well as various world lists of widely divergent 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).

At the end of 2005 the VLIZ data centre developed a **photo database** in which both **still and moving images** can be stored and documented. The photographs and movies in the VLIZ database can be viewed and searched through different in-house developed websites. Online input and description of new visual material is also possible by means of 74 website-specific photo galleries, each with their own sub-galleries. In 2010 the photo database contained over 32,000 images, which means an increase by about 7,000 images compared to the end of 2009.

Over 800 new pictures document the events (co)organised or facilitated by VLIZ in 2010 (www.vliz.be/vmdcdata/photogallery/index.php), but the majority of new images (4,471) show marine animals and plants from all over the world. They are made available on the website of the World Register of Marine Species (WoRMS): www.marinespecies.org/photogallery.php. WoRMS aims to provide at least one image for each species. Photographs often provide information on the behaviour and way of life of an animal or plant. At present, 14,000 pictures of 6,600 species are already available. The description of new additions is closely monitored by scientists, who check whether the photographs are linked to the correct species. After all, nothing is as annoying as finding the wrong picture accompanying a species in a newspaper or on a website...

Photo gallery of world list of marine species (WoRMS) shows what species look like

It's very annoying to find the wrong picture accompanying a species in the press or on a website. You can already download over 14,000 images of 6,600 species in the photo gallery of the world list of marine species (WoRMS), but the aim is to provide at least one image of every species. The description of new photographs is closely monitored by collaborating scientists, which ensures the description's quality.



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Projects

Within the scope of projects and cooperation agreements, VLIZ created several websites and performed a number of communication tasks in 2010. The data centre also collected a great deal of new marine information and made these data available. An overview:



The online **ScheldeMonitor data portal** gives access to a wide range of physical, chemical and biological information on the Scheldt estuary. Both *in situ* measurement data and derived data products and geographical information (GIS) are available. The data portal was created thanks to funding by the Maritime Access division of the Mobility and Public Works Department. Since December 2010 it has also been used by the Flemish-Dutch Scheldt Commission (www.vnsc.eu) and its Working Group on Research & Monitoring (R&M Working Group) to redistribute the data collected within the integrated monitoring programme of the Scheldt estuary. This concerns hydrodynamic and morphodynamic, ecological and physicochemical data collected by the measuring divisions of the Flemish and Dutch Governments. This is the first time similar data are offered on one portal for the Belgian part of the Scheldt Estuary and the Dutch Western Scheldt together. This cross-border provision of measuring data and map layers offers a clear added value in the evaluation process of the Scheldt estuary as a multifunctional estuarine water system.



The **VLIMAR Gazetteer** is a database of **marine geographic names** developed by VLIZ and linked to all available geographic information and maps of this location. The purpose of the Gazetteer is to ensure a more unambiguous use of the different geographic terms used in marine research, such as the names of seas, sandbanks, bays etc. In 2010 the database was extended with 752 place names – which brings the total number of available place names to over 29,000 – and additional information was added for 500 place names. Moreover, six new shapefiles were made available, including an update of Longhurst's alternative division of the seas and oceans into provinces, the polygons of the SeaVoX Salt and Fresh Water Body Gazetteer, and the demarcation of the continental margins according to the COMARGE project. The VLIMAR database can be consulted free of charge at www.vliz.be/vmdcdata/vlimar/.

Wealth of information available on the ScheldeMonitor data portal

Data portal users are offered a wide range of plot possibilities. For instance, *in situ* measurement data for the searched locations can be combined with a whole series of previously developed GIS map layers, such as ecotope maps and bathymetric maps.



Geographic support of marine scientists

VLIZ offers the VLIMAR Gazetteer and the MARBOUND database, but still receives many requests for geographic information and assistance in working with shapefiles. VLIZ provides practical support for the creation of maps for scientific publications*.



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*o.a. Costello, Cheung & De Hauwere (2010). *Environ. Sci. Technology*, 44(23): 8821-8828.

If you are looking for the most recent version of **maritime boundaries and Exclusive Economic Zones** (EEZs) of countries all over the world, then the Maritime Boundaries Geodatabase (**MARBOUND**) is what you need. The database also contains all digital information on treaties regarding these boundaries. Since its launch in 2006 new versions of the MARBOUND database have been released from time to time, as many countries are still negotiating with their neighbours on their common maritime borders. Users can contribute to the further development and optimisation of the database by posting news concerning border evolutions in a forum on the website www.vliz.be/vmdcdata/marbound. The MARBOUND database can be downloaded as a layer in Google Earth.



It might seem odd, but so far no-one has had a good overview of the species that occur in the Belgian part of the North Sea. To set this right, VLIZ began to compile a species list for the Belgian waters in 2010: the **Belgian Register of Marine Species (BeRMS)**. Information was obtained from existing yet more large-scale inventories and databases, supplemented with a new literature search. A large group of experts – field experts from Belgium and neighbouring countries, as well as taxonomists from all over the world – were prepared to collaborate on this initiative. At the end of 2010 the number of species amounted to 2,197, mostly invertebrates. The complete list can be consulted at www.marinespecies.org/berms. However, the counting has not been fully completed yet: a few groups of species have not yet been counted (including Bacteria). Work on this list will be continued in the future and species from the coastal area, including mudflats, tidal marshes, dunes and brackish water habitats, will be added.





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At the end of 2010 the **World Register of Marine Species (WoRMS)** included more than 415,000 taxonomic names, over 207,000 of which were currently valid binomina. A total of 15 new world lists were made available in 2010, including a list for sea squirts (Ascidacea), sea urchins (Echinoidea), centipedes and millipedes (Myriapoda), and forams (Foraminifera). Two new regional species lists were added as well: the Belgian species list BeRMS (see above) and the Canadian list CaRMS. The **Canadian Register of Marine Species (CaRMS)** was created by the Canadian Department of Fisheries and Oceans' National Science Data Management Committee in order to compile and manage a database of species so as to support aquatic biodiversity research and sustainable management of the natural resources in the Atlantic, Arctic and Pacific Oceans. Both the database and the website of CaRMS are hosted by VLIZ.



Finding out the correct spelling of a binomen is not always easy. What's more, scientific names can change in time and non-taxonomists often can't see the wood for the trees... That's why VLIZ developed the **Online Name Matching Tool** in 2010: a handy instrument to check the quality of lists with scientific names. The spelling, hierarchical classification and validity of scientific names are **cross-checked** against the expert-validated taxonomic databases hosted by VLIZ, i.e. the global list WoRMS and the European species inventory PESI. After uploading your own species list onto the website www.marinespecies.org/aphia.php?p=match, a file is created containing the valid names, author, year and classification. The system has a certain intelligence and will make suggestions in case of incorrect spelling or obsolete names. This tool has already proven its usefulness to thousands of users for checking and validating the taxonomy and spelling of their own lists of species.



© Dahdouh-Guebas

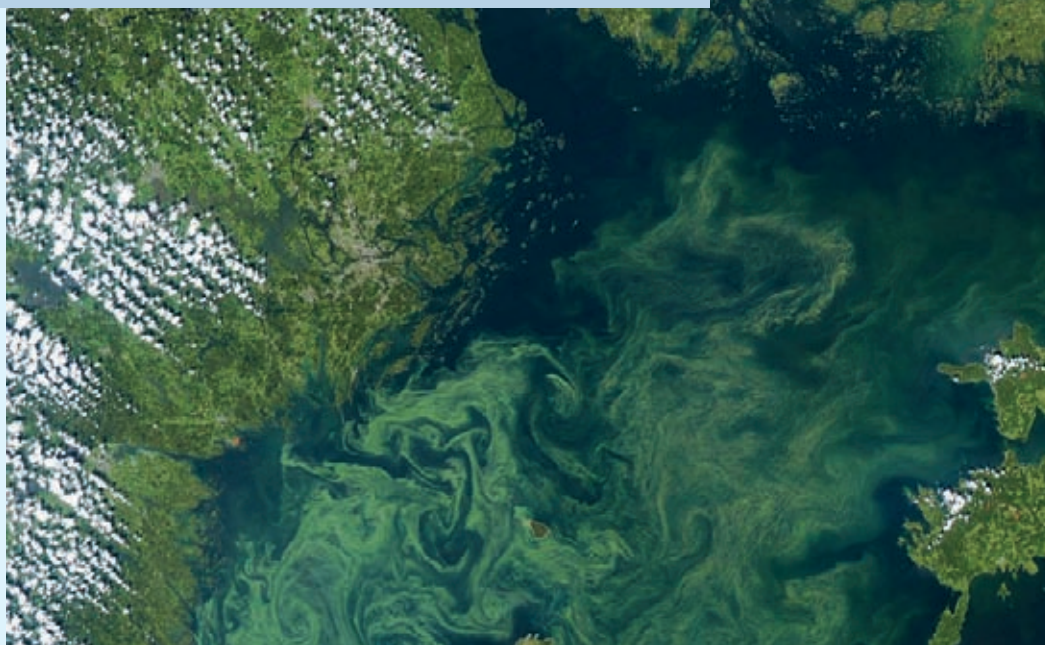
The cooperation agreements with Université Libre de Bruxelles (ULB) and Vrije Universiteit Brussel (VUB) resulted in the development of a **mangrove reference database**, which graphically represents the current and historical distribution of real mangrove species on maps. The website www.vliz.be/vmdcdata/mangroves also provides a fact sheet for every mangrove plant species, including images and details of herbarium reference specimens. Identification keys for all mangrove species will also be offered by this means in the near future. The project is headed by Prof Dr Farid Dahdouh-Guebas and is a collaboration between Université Libre de Bruxelles (ULB), Vrije Universiteit Brussel (VUB), the Belgian Biodiversity Platform and the National Botanic Garden of Belgium. VLIZ ensures the data management within this project and has disclosed the mangrove reference database in the world list of marine species too. The success of this collaboration is proven by the scientific publication on this database and related activities in Plant Ecology and Evolution (2010): *The Mangrove Reference Database and Herbarium*.



By means of several pilot projects in 2010 and 2011, the **European Marine Observation and Data Network (EMODnet)** is developing a system that will make high-quality marine data available to scientists, policy makers and other end users so as to optimally support the new European Maritime Strategy. VLIZ is responsible for the biological pilot project and in 2010 it put the **EMODnet Pilot Portal for Biology** online (<http://bio.emodnet.eu>). This website gives access to the marine biological data portal and metadata catalogue. At present it already gives access to a few large European biological data collections, originating from long-term monitoring and research. For instance, it is possible to download the ICES international trawl surveys, SAHFOS Continuous Plankton Recorder (CPR), IFREMER plankton monitoring, and biological data from the PANGAEA world data centre or visualise them on a map.

Reference list of toxic microalgae online

The list of toxic microalgae, drawn up by taxonomic experts within the scope of the UNESCO-IOC programme "Harmful Algal Blooms" in October 2010, has now been included in the world list of marine species WoRMS (www.marinespecies.org/hab). The taxonomic list also contains information on the occurrence, toxicity and harmful effects of each species. Later on it will be expanded with visual material and identification keys, and will officially play a part within national monitoring campaigns throughout the world. © NASA Earth Observatory



© NASA Earth Observatory

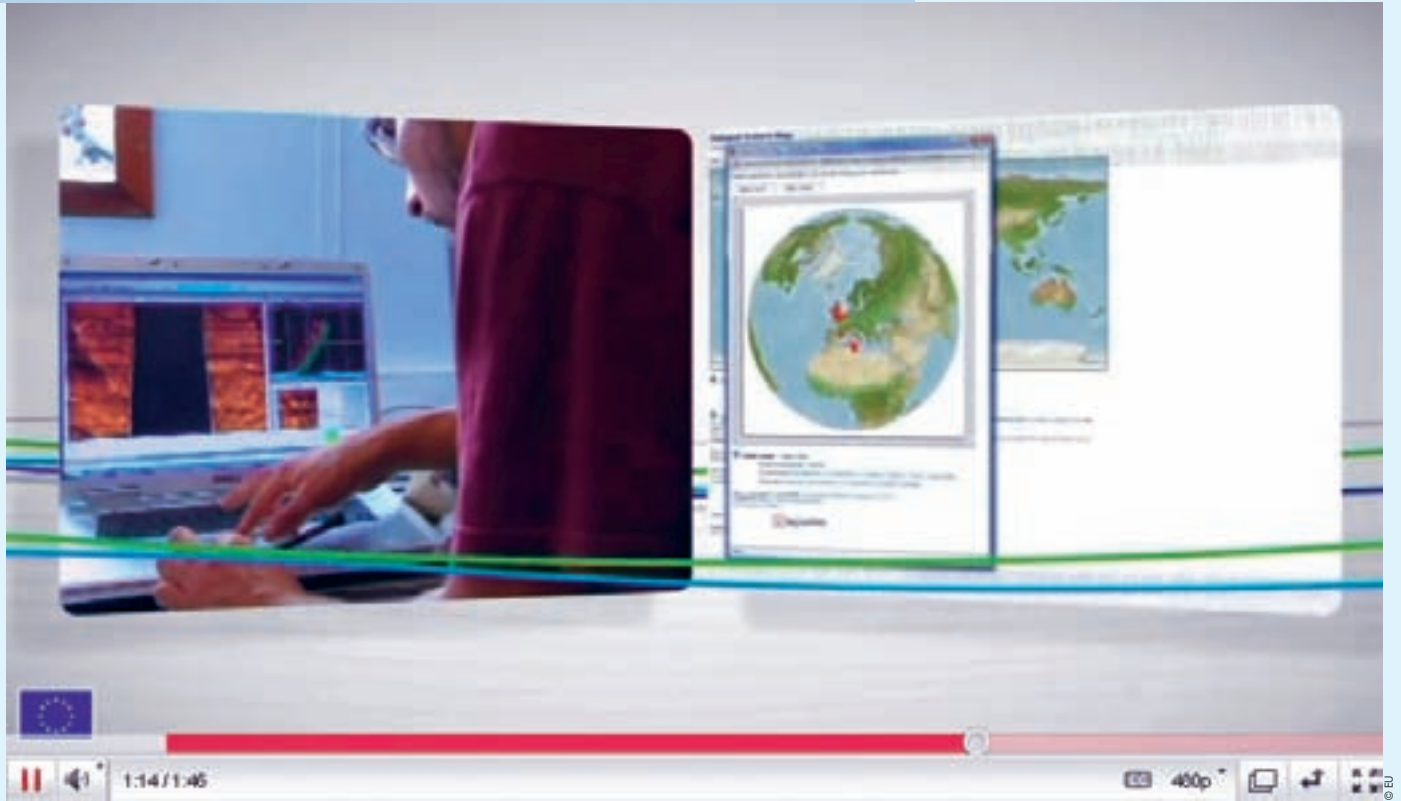
VLIZ brought 59 European and international top experts from science, politics, the private sector and education together to discuss their needs as to the use, availability and visualisation of marine biological data products on 25 and 26 February 2010. The European Commission (DG Research and DG MARE) and the most important European regional marine commissions (HELCOM, OSPAR, ICES, Black Sea Commission) were represented as well. All users appeared to be interested in maps that show the distribution of species, the trends in their occurrence and a visualisation of their possible vulnerability or sensitivity. The possibility to calculate biodiversity indices was also considered to be a necessity. Finally it turned out there was a need for classification of species in a non-taxonomic manner, such as an indication whether or not a species is covered by some kind of protection status, or whether it pertains to the benthos or plankton. EMODnet will initiate the development of these products in consultation with the experts in the future.



EurOBIS, the European node of the international Ocean Biogeographic Information System (OBIS), is hosted and operated by VLIZ. EurOBIS makes distribution data of marine species in Europe available. In addition, non-European distribution data are also included on condition that they have been collected by European institutes and scientists. The EurOBIS data system is also put into service in the European biological pilot project EMODnet (see above), which certainly benefits the increase in data and information in EurOBIS. The number of available distribution records in EurOBIS doubled from 7 million to 14.2 million in 2010 thanks to active data collection actions organised for EMODnet. For example, data from the French phytoplankton monitoring programme REPHY were added to the system as well as a number of data sets from the earlier MarBEF project. Several data sets were updated: the international trawl survey database and the ICES biological communities database as well as plankton monitoring data from the United Kingdom. Integration of the biodiversity data as to European marine benthos and plankton resulted in a scientific publication in *Hydrobiologia* (Vandepitte et al. 2010, 644: 1-13). A similar data integration exercise regarding copepods from European waters was the subject of a publication in the scientific periodical *Marine Biology* (Veit-Köhler et al. 2010, 157: 1819-1835).



EU invests in knowledge of the sea



The EU needs to integrate fragmented measurement and observation campaigns into one coherent whole to be able to underpin the integrated European Maritime Policy, including the Marine Strategy Framework Directive. The promotional campaign “Marine Knowledge 2020” was launched to introduce this initiative to a broader public. The promotional video shows Flemish scientists at work on the Zeeleeuw and in the VLIZ data centre as well as several data products developed or supported by VLIZ, such as the ScheldeMonitor data portal, EurOBIS, the World Register of Marine Species (WoRMS) and EMODnet. To watch the movie, go to www.youtube.com/watch?v=ogOOTFTg9LA.



© Zanuttigh

To stay ahead of the consequences of climate change and to be able to protect its 170,000 km of coast better, Europe started the ambitious scientific project **THESEUS** (Innovative technologies for safer European coasts in a changing climate) in December 2009. It brings coastal engineers and ecologists from 31 European institutes together to examine eight highly vulnerable areas, including the Scheldt estuary. The Belgian partners participating in the project are the Hydraulics laboratory of KULeuven and VLIZ. VLIZ is at the head of the package concerning communication and dissemination of information to the general public, and develops and maintains the project website www.theseusproject.eu for this purpose. From 2 to 4 June 2010, KULeuven and VLIZ organised the general project meeting, followed by an excursion on the River Scheldt for the 80 participants. On the occasion of this event, a press conference was also provided and a promotional video was launched on Euronews (www.euronews.net/2010/07/28/a-new-wave-in-coastal-protection/).

The objective of the European **PEGASO** project (People for Ecosystem-based Governance in Assessing Sustainable development of Ocean and coast) is to develop a new common approach in line with the directives of the ICZM Protocol for the Mediterranean (dated January 2008) on the basis of current efforts for developing Integrated Coastal Zone Management (ICZM) in the Mediterranean and the Black Sea. VLIZ is one of the 24 partners within the consortium and actively collaborates on the implementation of a Spatial Data Infrastructure, the development of the project website and portal (www.pegasoproject.eu) as well as the elaboration of indicators, scenarios and a socio-economic evaluation. As a data and information co-ordinator VLIZ is furthermore responsible for ensuring the flow of information between the different partners and end users. PEGASO also makes use of the internet encyclopaedia Coastal & Marine Wiki www.pegasoproject.eu/wiki with over 28,000 unique visitors a month!



In 2010 a first implementation contract was completed within the scope of the renewed **cooperation agreement** between VLIZ and the **Research Institute for Nature and Forest (INBO)**. The MDA and IMIS data and information systems of VLIZ were adapted in such a way that they can now be accessed and used by INBO from their website (<http://informatiecentrum.inbo.be/>). Besides the digital library catalogue, all their staff members, projects, maps and data sets are described in this information system and kept up to date by INBO employees. The Marine Data Archive (MDA) was used for archiving the data files of various research groups. The second aspect of this cooperation was mainly aimed at the **transfer of expertise** from the VLIZ data centre to the Information Division and Data Centre of INBO with regard to archiving and documenting data and information. Within this scope, collective work was carried out on an overview of all biodiversity data and information present at INBO. The inventory currently contains 153 data set descriptions originating from 7 research groups.



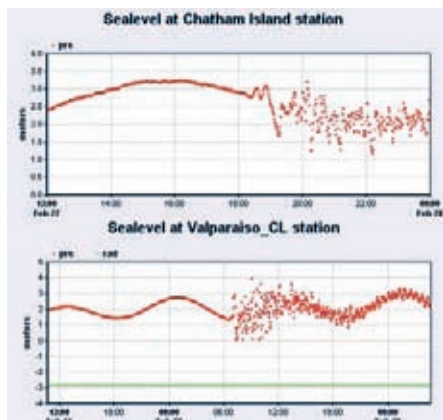
Within the scope of the existing **cooperation agreement** with **ILVO – Fisheries**, the Fisheries Biology section sought the advice of the VLIZ data centre as to the organisation of good and efficient data management in 2010. After a number of tentative talks and a preliminary investigation, VLIZ made several suggestions to optimise data management at ILVO - Fisheries. Apart from these new developments, previously initiated activities were continued. For instance, the Environmental Monitoring section entered over 150,000 macrobenthos and epibenthos data into the database developed for this purpose by VLIZ. In addition, VLIZ also offered support to the Fisheries Biology and Environmental Monitoring sections in reporting ILVO data to national and international organisations (IDOD database of the Belgian Science Policy and Fishframe).



By means of the two-year federal research project 'Assessment of Marine Debris on the Belgian Continental Shelf: occurrence and effects' (**As-Made**), the Research Institute for Nature and Forest, the Laboratory of Environmental Toxicology and Aquatic Ecology of Ghent University and VLIZ intend to gain an insight into the quantity of debris present in the Belgian part of the North Sea. All available information originating from scientific projects or collected by volunteers in organised actions such as 'Lenteprikkel' or 'Fishing for Litter' is stored in a database developed by VLIZ. Surveys will be used to form a picture of what marine debris exactly means to industry, tourism and the population. Additional experiments on the other hand will contribute to the discovery of the effects of debris on marine plants and animals. VLIZ also ensures the development and maintenance of the project website www.vliz.be/projects/as-made, aimed at informing both a scientific and a broader public on this project and marine debris.



© Cayless/Marine Photobank



VLIZ developed the Sea Level Station Monitoring Facility website for the **Global Sea Level Observing System (GLOSS)**. It shows the data of 531 sea level measuring stations from all oceans in the world that can be read in through various channels such as satellite, FTP or e-mail in real time and made available on the website within 2 minutes www.ioc-sealevelmonitoring.org. The usefulness of this real-time data system was clearly proven during the earthquake of 27 February 2010 in Concepción, Chile. Just 12 minutes after the earthquake, the Pacific Tsunami Warning Center (PTWC) was able to launch a regional tsunami alert. The progress of the tsunami was closely followed all over the world by both professionals and third parties by means of the monitoring system operated from Ostend.

In 2010 a 'mirror website' of the current Sea Level Station Monitoring Facility website was created in collaboration with the GLOSS data centre at the University of Hawaii Sea Level Center (UHSLC); it temporarily takes over in case the VLIZ servers are offline. The plan was conceived to start up a global metadata catalogue of all sea level measuring stations on the occasion of the GLOSS expert meeting in March 2010, where it was agreed that the global network of measuring stations could be developed in a better and more stable way. This means that every measuring station is described uniformly and in detail (location, local contact, etc.).



SeaDataNet is aimed at the development of a pan-European infrastructure to manage, index and provide access to marine data sets and data products collected through research, boat trips and other measurement activities. This is made possible by the financial support of an Integrated Infrastructure Initiative (I3) of the EU Sixth Framework Programme and has been running since early 2006. SeaDataNet is coordinated by IFREMER and brings 49 national oceanographic data centres from 35 countries together, all bordering the European seas. Its objective is to interconnect these data centres in order to offer integral online access to a comprehensive collection of multidisciplinary in situ and remote sensing marine data, metadata and data products. VLIZ collaborates on building the SeaDataNet infrastructure by supplying information and metadata as to the research activities of Flemish marine scientists. VLIZ was also present at the International Conference on Marine Data and Information Systems (IMDIS 2010) in Paris from 29 to 31 March 2010.



A database was created in 2010 to collect and record the long-term monitoring data of **the fish stock in the cooling water of the Doel** nuclear power plant in consultation with the Animal Ecology and Systematics section of KULeuven and the Research Institute for Nature and Forest. These data reflect seasonal patterns in the composition and community structure of fish in the Belgian part of the Scheldt Estuary.



A methodology was elaborated to **evaluate the development of the Scheldt estuary** on the basis of integrated system monitoring at the behest of the Flemish-Dutch Scheldt Commission (VNSC) in 2010. VLIZ collaborated on this assignment as a subcontractor of DELTARES from the Netherlands and together with the Ecosystem Management research group (ECOBIE) of the University of Antwerp, the Research Institute for Nature and Forest, and the Centre for Estuarine and Marine Ecology of the Netherlands Institute of Ecology (CEME- NIOO). The elaborate methodology will be implemented for the first time in the course of 2011 and improved wherever necessary.

In 2009 and 2010, VLIZ supported the three centres of the **Netherlands Institute of Ecology NIOO** (terrestrial, freshwater, estuarine and marine) in their implementation of good data management. In this period, data management training was provided to NIOO employees and a data system was set up (<http://data.nioo.knaw.nl>), among other things. The objective is that NIOO systematically continues to update and use the developed system in the future and that VLIZ continues to play a supporting part.



The website of the **Belgica Society** (www.belgica-genootschap.be) was updated in 2010 and supplemented with additional applications and information. For instance, you can follow in the footsteps of Adrien de Gerlache on a virtual voyage along the Antarctic locations he explored; all information is recorded in the VLIZ Marine Gazetteer (VLIMAR). Each location comes with a bit of explanation, such as how it got its name. A dynamic timeline will give you an insight into the chronology of the exploratory expeditions and other Belgica-related events. In collaboration with the VLIZ library, all reports of the Belgian Antarctic Expedition of 1897-1899 have been made digitally available and a large number of the illustrations from these reports have been disclosed separately. Lastly, the news page provides an overview of the principal facts on and initiatives by the Society.



UNESCO/IOC Project



UNESCO/IOC Project Office for IODE

Office for IODE



Sand hopper - *Talitrus saltator* © Decleer

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

A straight course with the IODE Project Office in Ostend

A new UNESCO Platform Vlaanderen brochure illustrates how the UNESCO/IOC Project Office for IODE in Ostend operates by means of a few concrete examples. © UNESCO Platform Vlaanderen



© UNESCO Platform Vlaanderen

Since 2005, Flanders has offered accommodation and support to the UNESCO/IOC Project Office for IODE in Ostend. This centre makes an important contribution to the development of international oceanography and to the promotion of the sustainable use and development of coastal areas all over the world. The centre in Ostend is primarily a training centre where data and information managers, mainly from developing countries, can acquire the necessary knowledge and skills to function within the international context of oceanography and marine sciences. It is also a meeting place for researchers to work out common projects and to test new technologies and developments. A new UNESCO Platform Vlaanderen brochure explains how all this is organised and sketches the broader framework in which the centre for oceanographic data management operates (www.unesco-vlaanderen.be/media/54855/recht_door_zee.pdf).

The Flemish Government supports the UNESCO/IOC Project Office for IODE through VLIZ. Within the scope of this special responsibility, VLIZ receives 79,000 for taking care of the accommodation and support of the UNESCO/IOC Project Office for IODE. In addition, the Flemish Government provides 455,000 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 approx 150 persons. The upper floor boasts two training rooms, staff offices as well as a smaller meeting room with video conferencing facilities (8 persons). The UNESCO/IOC Project Office for IODE hosts 105 dynamic websites across 12 servers (inclusive of virtual machines). At the end of 2010 the Project Office staff comprised 8 personnel members, 3 of which were on the VLIZ payroll.

Project Office for IODE staff 2010

Name	Function	
Peter Pissierssens	Manager	> UNESCO
Wouter Rommens	Training course coordinator	> VLIZ
Mark Van Crombrugge	IT Expert	> VLIZ
Kristin de Lichtervelde	Administrative assistant	> VLIZ
Annelies Groen	Documentalist	> VLIZ (part-time)
Aditya Naik Kakodkar	IT-expert	> UNESCO
Mika Odido	Regional programme coordinator	> Visiting expert (long term)

Oceanographic data and information management training courses

In 2010 the UNESCO/IOC Project Office for IODE organised 8 training activities within the Ocean Teacher Academy (see table). A total of 155 students took part.

These students came from 55 different countries: Angola, Argentina, Australia, Bangladesh, Barbados, Belgium, Benin, Brazil, Bulgaria, Chile, China, Colombia, Congo-Kinshasa, Cuba, Cyprus, Germany, Ecuador, Eritrea, Fiji, Gabon, Ghana, Ireland, Indonesia, Italy, Ivory Coast, Jamaica, Cameroon, Kazakhstan, Kenya, Kiribati, Croatia, Latvia, Namibia, Nigeria, Madagascar, Malaysia, Mauritania, Mauritius, Mexico, Mozambique, Panama, Ukraine, Peru, Poland, Russian Federation, Solomon Islands, Seychelles, Tanzania, Thailand, Togo, Uruguay, Venezuela, United States, Vietnam and South Africa.

The students stayed in Ostend for a total number of 953 person days (person days: duration of the training x number of students).

Training courses 2010	Date	#
OceanTeacher Academy MIM: Training Course on Preservation and Archiving of Digital Media	22-26.03	20
OceanTeacher Academy Course MIM: Literature and databases of the Marine Sciences	26-30.04	14
OceanTeacher Academy Course DM: Introduction to Marine GIS	17-21.05	19
OceanTeacher Academy Course on Disaster Planning and Recovery for Marine Librarians	01-07.07	20
OceanTeacher Academy Course DM: Introduction to Marine Data for Young Scientists	06-10.09	23
OceanTeacher Academy Course DM: Basic Marine Data Management	13-24.09	23
OceanTeacher Academy Course DM: Marine and Coastal Atlas Development	22-26.11	20
OceanTeacher Academy Course MIM: Writing for Professional Publications	29.11-03.12	16

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

Guest researchers

A total of 16 scientific meetings and workshops were organised at the Project Office for IODE in Ostend in 2010 (see table). A total of 182 guest researchers from 42 different countries visited the office. They stayed for a period of one day to several months, resulting in a total number of 604 person days.

The participants came from the following countries: Argentina, Australia, Belgium, Brazil, Bulgaria, Canada, Chile, China, Denmark, Germany, Philippines, France, Georgia, Ghana, Greece, India, Iran, Italy, Ivory Coast, Japan, Cayman Islands, Cameroon, Kenya, Croatia, Latvia, Morocco, Mauritius, Namibia, Netherlands, Ukraine, Poland, Romania, Russian Federation, Senegal, Tanzania, Tunisia, Turkey, Uruguay, United Kingdom, United States, Switzerland and Sweden.

Meetings & Workshops 2010	Date	#
ODINAFRICA-IV Project Steering Committee meeting	20-22.01	7
IODE Workshop on Quality Assurance & Quality Control of Chemical Oceanographic Data	8-11.02	17
2010 Session of the IODE Officers	08-11.03	12
ODINECET Workshop	18-20.03	12
ETDMP-II: Second Session of the JCOMM/IODE Expert Team on Data Management Practices	06-07.04	11
DMCG-IV: Fourth Session of the JCOMM Data Management Coordination Group	08-09.04	9
Third Joint GOSUD/SAMOS Workshop	04.05	17
GTSP Annual Meeting 2010	05-07.05	19
GEMIM-XI: IODE Group of Experts on Marine Information Management, 11th Session	25-28.05	10
Meeting of the IODE Steering Group for the IODE Ocean Data Portal	20-22.09	16
Third Session of the ODINBlack Sea Steering Committee	21-22.10	7
ODINAFRICA Marine Biodiversity Data Digitization for Guinea	25-29.10	2
Third Meeting of the Joint Steering Group for the IODE Ocean Data Portal and the WIGOS Pilot Project for JCOMM	01-03.11	16
Ad hoc meeting of the IODE Steering Group for OBIS	18-19.11	15
6 - 8 ODINAFRICA-IV PSC: 2nd ODINAFRICA Project Steering Committee	06-08.12	8

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



Annexes

Financial statement

Performance & other indicators

Organisational chart

VLIZ contact information

VLIZ Collected Reprints 40 (2010)

FINANCIAL STATEMENT

BALANCE SHEET AND PROFIT AND LOSS ACCOUNT

BALANCE SHEET as per 31 DECEMBER 2010 (kEUR)

Assets	31-12-04	31-12-05	31-12-06	31-12-07
Intangible fixed assets	1.05	0.52	0.00	1.04
Tangible fixed assets	298.22	499.52	606.40	659.91
Financial fixed assets	16.76	12.39	13.70	1.31
Amounts receivable within one year	88.23	179.29	237.41	255.45
Investments	0.17	0.00	0.00	0.00
Liquid assets	301.62	412.03	411.82	268.44
Prepayments and deferred income	228.26	80.74	40.76	3.07
Total	934.32	1,184.50	1,310.09	1,189.22

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

PROFIT AND LOSS ACCOUNT 2010 (kEUR)

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

Losses	31-12-04	31-12-05	31-12-06	31-12-07
Remuneration and social security charges	1,073.67	1,273.51	1,540.74	1,712.93
Services and other goods	670.86	1,179.27	1,542.45	1,302.59
Provisions for liabilities and charges	0.00	25.00	-3.64	0.90
Depreciations	113.29	185.22	218.70	258.43
Financial charges	2.83	2.68	1.98	1.42
Other operating charges	980.39	17.61	117.17	67.98
Extraordinary charges	0.00	1.00	0.00	0.00
Total	2,841.04	2,684.31	3,417.40	3,344.25

Result	2004	2005	2006	2007
Result of the financial year	18.16	295.17	235.65	-166.66
Transfer to allocated funds	10.00	10.00	0.00	0.00
Profit and loss reserve brought forward as per 31/12	381.02	666.19	901.84	735.18

31-12-08	31-12-09	31-12-10
3.29	8.28	12.38
518.27	1,066.92	977.66
1.31	12.44	11.13
261.73	322.21	369.15
1,000.00	1,400.00	2,211.43
169.77	72.09	326.75
0.50	1.43	13.63
1,954.87	2,883.37	3,922.13

31-12-08	31-12-09	31-12-10
95.78	95.78	95.78
1,647.57	1,743.63	2,173.68
		540.19
60.71	10.40	0.00
	713.73	822.66
123.79	319.83	289.82
27.02	0.00	0.00
1,954.87	2,883.37	3,922.13

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

31-12-08	31-12-09	31-12-10
2,008.63	2,331.31	2,476.27
1,312.18	1,433.79	1,342.33
38.45	-50.31	-10.40
218.73	264.9	226.24
7.00	5.59	5.00
215.80	409.04	100.52
0.52	0.00	0.00
3,801.31	4,394.32	4,139.96

2008	2009	2010
912.40	96.05	430.05
0.00	0.00	0.00
1,647.57	1,743.63	2,173.68

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 2010 (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 2010 budget (art. 9 §1 of the Management Agreement): none

PERFORMANCE & OTHER INDICATORS

VLIZ performance indicators overview table

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

Performance indicator	2004	2005	2006	2007
P1 Number and quality of cooperation agreements concluded with institutional actors in the field of marine scientific research in Belgium and abroad	10	13	17	19
P2 Number of quality-checked records in the IMIS literature module	63,534	73,486	87,346	97,795
P3 Number of quality-checked records forwarded to the ASFA database	396	666	939	1,126
P4 Number of quality-checked records in the VLIZ databases	17,572,920	24,297,742	36,303,562	73,923,402
P5 Number and quality of informative publications for the public at large:				
· number of issues of 'De Grote Rede' (*)	3	3	2	3
· total number of pages of 'De Grote Rede' (*)	72	92	60	96
· number of subscribers to 'De Grote Rede'	2,193	2,386	2,892	3,585
· number of issues of 'VLIZINE' (*)	6	5	5	8
· total number of articles in 'VLIZINE' (*)	140	117	91	171
· number of subscribers to 'VLIZINE'	730	839	930	1,155
· number of other publications for the public at large made with the active cooperation of VLIZ (*)	5	3	10	7
· number of questions/answers added to the 'Our Coast' section of the VLIZ website	50	113	287	8
P6 Number of guest researchers using the 'IODE Project Office' expressed in terms of person days (*)	0	296	173	110
P7 Actual number of sailing days spent on scientific research (*)	195	240	188	239
P8 Number of training activities organised within the scope of the additional assignment described in article 4, expressed in number of person days (*)	0	1,227	2,348	942

(*): reported per calendar year

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

2008	2009	2010
20	22	23
104,023	113,058	116,382
1,454	1,791	1,866
157,962,748	385,140,405	566,227,451
3	2	3
92	64	104
4,505	4,972	5,433
7	5	7
172	114	161
986	1,019	1,041
10	5	11
53	8	17
687 (\$)	457	604
238	234	292
708 (\$)	656	953

Performance indicators in more detail

The 8 performance indicators used to assess the performance of VLIZ in 2010 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 23 August 2010 a cooperation agreement was concluded with the **Ecosystem Management Research Group** (ECOBRE) of the University of Antwerp (UA) regarding data management for research on the effects of the Sigma plan, dredging activities and harbour extension on the environment of the Belgian part of the Scheldt Estuary (OMES project).

Since it was created, VLIZ has entered into a total of **23 (inter)national cooperation agreements** with universities, research institutions and administrations. This number does **not include** the management agreements with the Department of Economy, Science and Innovation, and with the Province of West Flanders.

We have recorded an increase in the number of agreements by 13 since the entry into force of the management agreement (2005-2009).

Overview of the 23 (inter)national cooperation agreements concluded between VLIZ and institutional actors in the field of marine scientific research in Belgium and abroad.

BELGIAN UNIVERSITIES

- Universiteit Gent, Biology Department – biodiversity databases
 - Prof Dr M. Vincx – meiobenthos/macro-benthos/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 & Prof Dr F. Dahdouh-Guebas – mangroves
- Université Libre de Bruxelles, Prof Dr F. Dahdouh-Guebas – mangroves
- Universiteit Antwerpen, Prof Dr P. Meire – environmental effects in the Belgian part of the Scheldt estuary (OMES)

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 data
- Research Institute for Nature and Forest (INBO) – information exchange and data management with regard to marine and coastal research
- Flemish Environment Agency (VMM) – development and management of databases in connection with the monitoring of transitional and coastal waters
- The MUMM department of the RBINS – cooperation with regard to RV Zeeleeuw and RV Belgica

FLEMISH AUTHORITIES

- Policy domain Mobility and Public Works (MOW) – disclosure and exchange of scientific information and use of the measurement data of tidal systems
- Agency for Maritime Services & Coast, Coastal Division – redistribution of data from Monitoring Network Flemish Banks
- Agency for Maritime Services & Coast, Coastal Division – management of greenhouses for dune research in De Haan
- Agency for Maritime Services & Coast, Coastal Division – chairing of the Sluice Dock management committee, management of data and website
- Agency for Maritime Services & Coast, DAB Fleet – management of the Zeeleeuw research vessel
- Agency for Maritime Services & Coast, Coastal Division, and Research Institute for Nature and Forest (INBO) – monitoring of Flemish beaches

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 IMIS integrated 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 2010 the IMIS literature module contained a total of 116,382 quality-checked records of marine or coastal publications. This is 3,324 more than at the end of 2009.

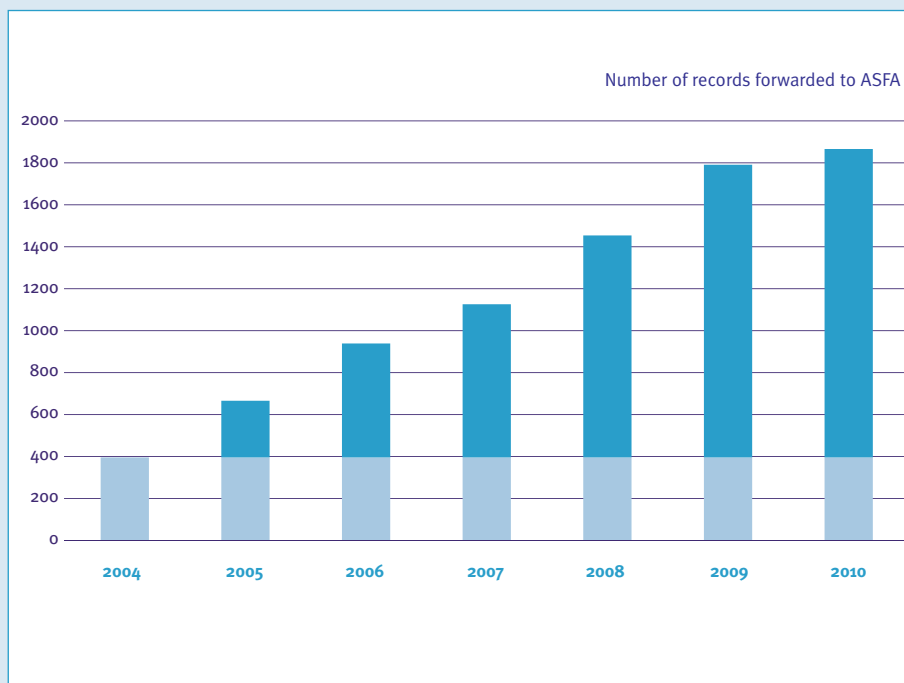
At the end of 2004 the total number of quality-checked literature records was 63,534. This is an increase of 52,848 units (or 83%) compared to the beginning of the 2005-2009 management agreement.



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 imports peer-reviewed articles as well as local grey literature (reports, theses...) into this database. The ASFA Advisory Board assesses the operation, contents and efficiency of the ASFA database on a yearly basis. In 2010 VLIZ added 75 Flemish/Belgian marine references to the database, which gives a total of 1,866 records so far.

In 2004, the first year in which data were forwarded, VLIZ added 396 records. This means that a total of 1,470 new records have been added since the start of the new management agreement (2005-2009).

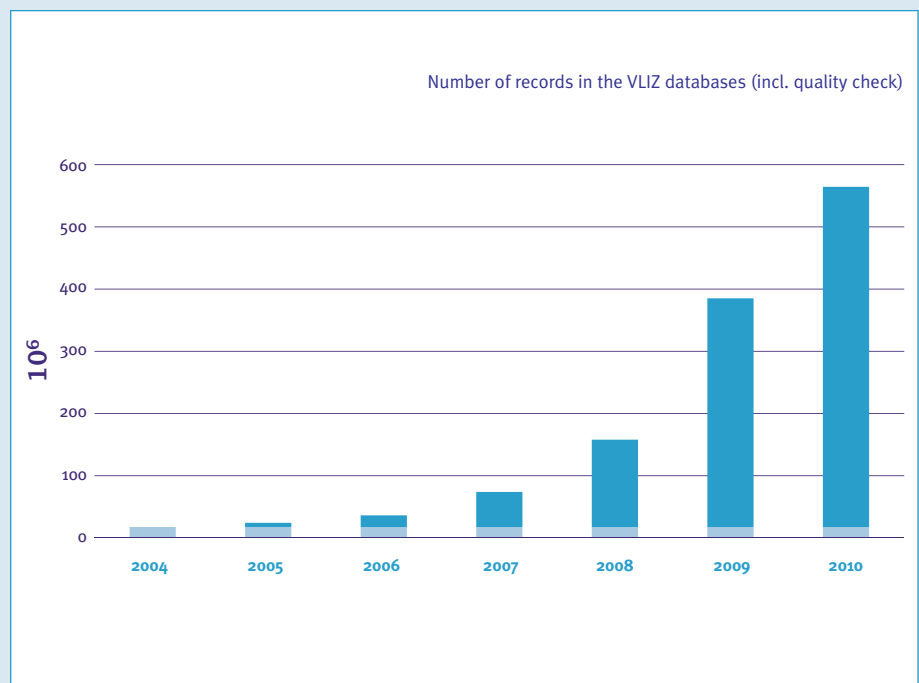


P4: Number of quality-checked records in the VLIZ databases

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

At the end of 2010 the total number of quality-checked unique records throughout all VLIZ databases amounted to 564,380,166. This is an increase by 147% compared to the number of records reported in the annual report of 2009. 85% of this increase can be attributed to a continuous stream of data from 531 measuring stations throughout the world of the Sea Level Station Monitoring Facility, and 2.7% can be attributed to data coming from the Flemish Banks Monitoring Network.

The number of records in the databases has increased by a factor of 32 (coming from 17,572,920 records) 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.

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

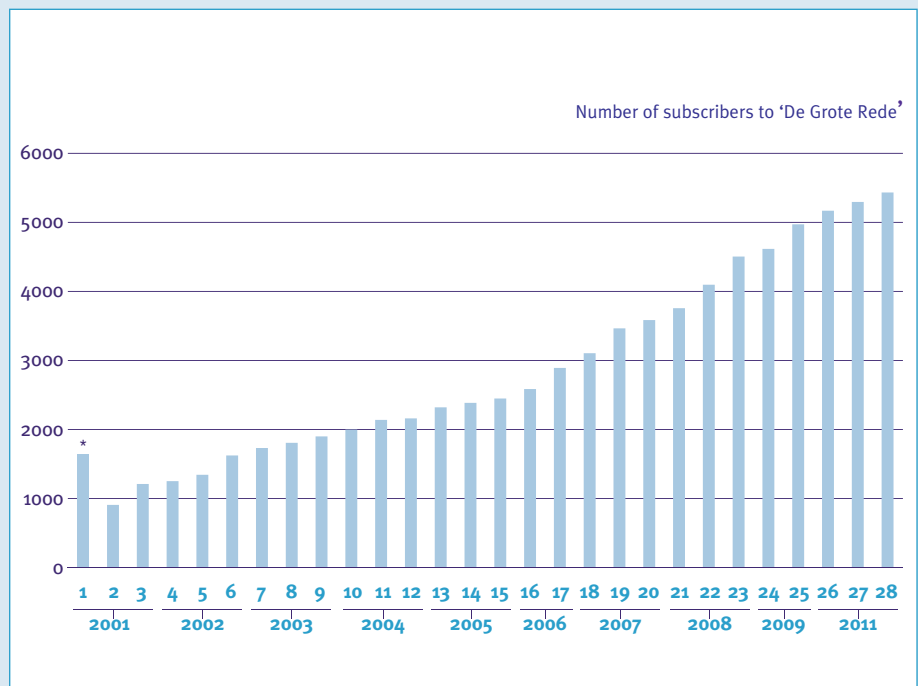
Since 2007, VLIZ has placed special focus on schools and other educational institutes by means of a Structural Partnership with the Flemish Government.

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

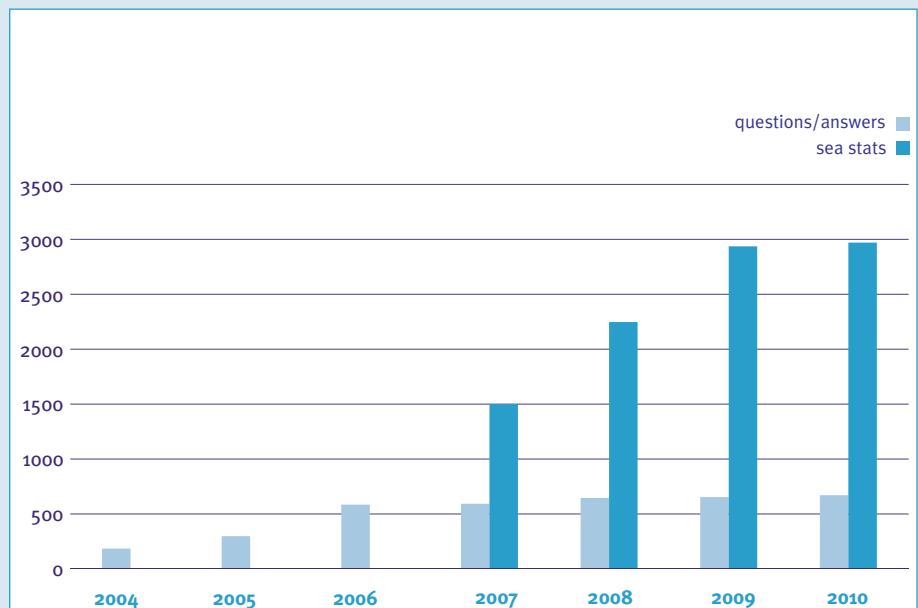
Informative publication	Indicator	2004	2005	2006	2007	2008	2009	2010
'De Grote Rede'	number of issues	3	3	2	3	3	2	3
	total number of pages	72	92	60	96	92	64	104
	total number of leading articles	9	9	6	9	9	6	9
	total number of short articles	11	14	16	15	15	10	14
	number of short features	0	0	10	15	15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

In 2010:

- VLIZ published 3 issues of 'De Grote Rede', comprising a total of 104 pages, 6 leading articles, 17 short features, 14 short articles and 6 marine terms. We reached a total of 5,433 subscribers;
- VLIZ published 7 issues of the digital newsletter 'VLIZINE', comprising a total of 161 articles; the newsletter was sent to 1,041 e-mail addresses.
- VLIZ actively contributed to 11 other publications for the public at large;
- VLIZ added 17 questions/answers to the 'Our Coast' section on the VLIZ website; this means that a total of 582 questions and answers in Dutch and 89 in English can now be found online;
- VLIZ added 34 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' newsletter increases with every issue. In 2010 we welcomed 461 new subscribers. The number of subscribers has increased by 3,272 since the 2004-2009 management agreement took effect.
 (*: the first issue was sent to 1,639 addresses with an invitation to subscribe)

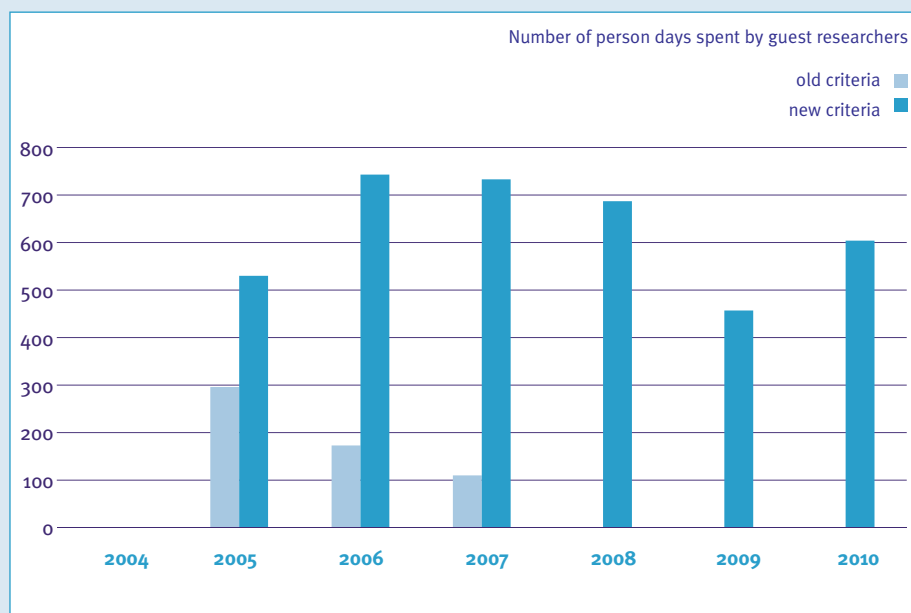


In 2010 a total of 34 reliable figures and tidbits of information were added to our 'SeaStats' database (www.vliz.be/cijfers_beleid/zeecijfers) and 17 questions/answers were added to the 'Our coast' section of the VLIZ website (www.vliz.be/vmdcdata/faq)

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 (79,000 in 2010) and channels a budget of 455,000 to the Project Office for the organisation of training courses in the field of tsunami early warning systems and other sea-related phenomena.

A total of 182 guest researchers from 42 different countries visited the Project Office for IODE in Ostend in 2010, resulting in a total of 604 person days.



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

A total of 16 scientific meetings were organised in Ostend in 2010 (see table). In addition, several experts worked at the Project Office for short or longer periods.

Meetings & Workshops 2010	Date	#
ODINAFRICA-IV Project Steering Committee meeting	20-22.01	7
IODE Workshop on Quality Assurance & Quality Control of Chemical Oceanographic Data	8-11.02	17
2010 Session of the IODE Officers	08-11.03	12
ODINECET Workshop	18-20.03	12
ETDMP-II: Second Session of the JCOMM/IODE Expert Team on Data Management Practices	06-07.04	11
DMCG-IV: Fourth Session of the JCOMM Data Management Coordination Group	08-09.04	9
Third Joint GOSUD/SAMOS Workshop	04.05	17
GTSP Annual Meeting 2010	05-07.05	19
GEMIM-XI: IODE Group of Experts on Marine Information Management, 11th Session	25-28.05	10
Meeting of the IODE Steering Group for the IODE Ocean Data Portal	20-22.09	16
Third Session of the ODINBlack Sea Steering Committee	21-22.10	7
ODINAFRICA Marine Biodiversity Data Digitization for Guinea	25-29.10	2
Third Meeting of the Joint Steering Group for the IODE Ocean Data Portal and the WIGOS Pilot Project for JCOMM	01-03.11	16
Ad hoc meeting of the IODE Steering Group for OBIS	18-19.11	15
6 - 8 ODINAFRICA-IV PSC: 2nd ODINAFRICA Project Steering Committee	06-08.12	8

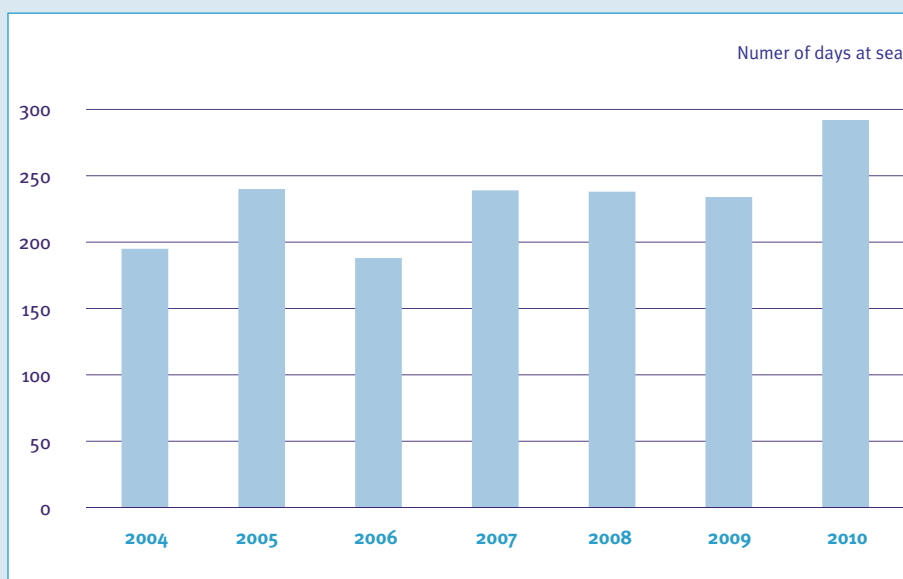
The participants came from the following countries: Argentina, Australia, Belgium, Brazil, Bulgaria, Canada, Chile, China, Denmark, Germany, Philippines, France, Georgia, Ghana, Greece, India, Iran, Italy, Ivory Coast, Japan, Cayman Islands, Cameroon, Kenya, Croatia, Latvia, Morocco, Mauritius, Namibia, Netherlands, Ukraine, Poland, Romania, Russian Federation, Senegal, Tanzania, Tunisia, Turkey, Uruguay, United Kingdom, United States, Switzerland and Sweden.

P7: Actual number of days at sea for scientific research

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

In calendar year 2010 a total of 292 days were spent at sea on scientific research, 151 of which with the Zeeleeuw, 57 with the Zeekat and 84 with other ships of DAB Fleet. Out of 175 originally planned trips, 143 were actually carried out (7 of which were continuous trips of consecutive days including nights). The Zeeleeuw eventually sailed for 1,379 hours (or 94% of available time), and 394 scientists and 485 passengers (pupils, students, divers ...) embarked. Nineteen different research groups made use of the Zeeleeuw within 23 projects (see table).

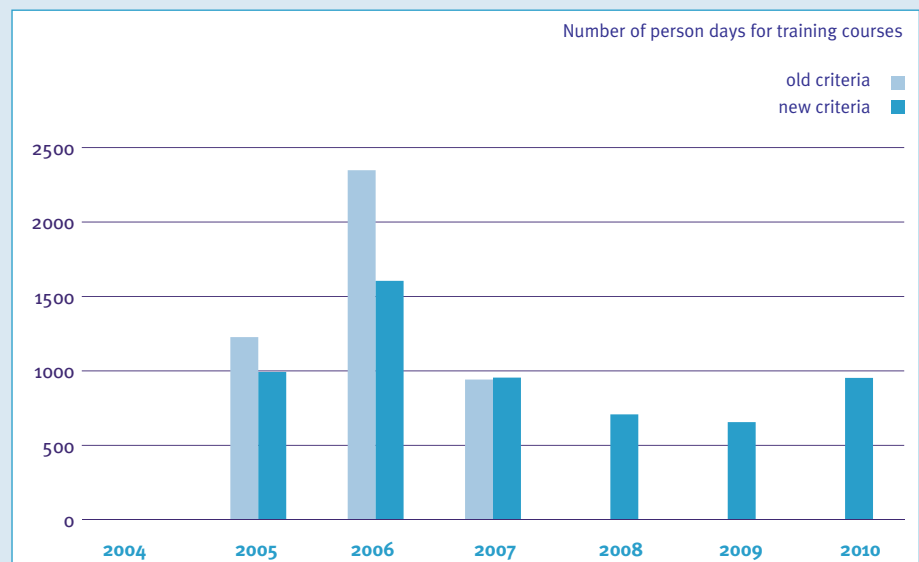
Number of days at sea for research purposes:	2004	2005	2006	2007	2008	2009	2010
R/V 'Zeeleeuw'	155	151	122	150	162	166	151
RIB 'Zeekat'	37	45	35	51	39	32	57
'Third' vessels: Ter Streep, Veeremans, Scheldewacht, Parel I en Scaldis	3	44	41	38	37	36	84
Total number of days at sea for research purposes	195	240	188	239	238	234	292



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 155 students from 55 different countries were organised at the UNESCO/IOC Project Office for IODE in 2010. The total number of person days amounted to 953.



An overview of the training courses organised in 2010 with indication of the date and number of participants is given below:

Training course 2010	Date	#
OceanTeacher Academy MIM: Training Course on Preservation and Archiving of Digital Media	22-26.03	20
OceanTeacher Academy Course MIM: Literature and databases of the Marine Sciences	26-30.04	14
OceanTeacher Academy Course DM: Introduction to Marine GIS	17-21.05	19
OceanTeacher Academy Course on Disaster Planning and Recovery for Marine Librarians	01-07.07	20
OceanTeacher Academy Course DM: Introduction to Marine Data for Young Scientists	06-10.09	23
OceanTeacher Academy Course DM: Basic Marine Data Management	13-24.09	23
OceanTeacher Academy Course DM: Marine and Coastal Atlas Development	22-26.11	20
OceanTeacher Academy Course MIM: Writing for Professional Publications	29.11-03.12	16

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

These students came from 55 different countries: Angola, Argentina, Australia, Bangladesh, Barbados, Belgium, Benin, Brazil, Bulgaria, Chile, China, Colombia, Congo-Kinshasa, Cuba, Cyprus, Germany, Ecuador, Eritrea, Fiji, Gabon, Ghana, Ireland, Indonesia, Italy, Ivory Coast, Jamaica, Cameroon, Kazakhstan, Kenya, Kiribati, Croatia, Latvia, Namibia, Nigeria, Madagascar, Malaysia, Mauritania, Mauritius, Mexico, Mozambique, Panama, Ukraine, Peru, Poland, Russian Federation, Solomon Islands, Seychelles, Tanzania, Thailand, Togo, Uruguay, Venezuela, United States, Vietnam and 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 organised	10	15
Number of participants in organised events	890	1117
Number of 'Special Publications' pages	1,465	953
Number of hits/visitors to the VLIZ website and other websites hosted on the 'vliz.be' domain: total number of visits	505,474	263,896
Number of hits/visitors to the VLIZ website and other websites hosted on the 'vliz.be' domain: total number of pages consulted	2,131,950	2,371,833
Marine Library		
Number of exchange subscriptions with the VLIZ Collected Reprints (resulting in at least the same number of journal or series titles in the VLIZ library)	163	163
Number of new publications in the library (references)	9,952	11,446
Number of requested references in the library	815	598
Number of titles offered online via the Open Marine Archive	524	2,221
Number of titles downloaded via the Open Marine Archive	-	12,487
Percentage of questions answered successfully	99	98
Facilities		
Number of researchers/students/passengers that made use of the Zeeleeuw	830	697
Number of references to VLIZ in scientific publications resulting from the use of the facilities	31	48
Number of records in the MIDAS database	3,506,515	4,037,139
Data centre		
Number of archived and disclosed datasets expressed in number of files	1,701	5,896
Number of archived and disclosed datasets expressed in total file size (in Gb)	1.83	6.22
Number of records in biological databases (Aphia, Eurobis, Macrobis, NSBP and Antobis)	2,823,778	5,951,961
Number of records in the IMIS 'Publications' module	87,545	99,792
Number of records in the IMIS 'Datasets' module	500	714
Number of records in the IMIS 'Institutes' module	4,818	5,154
Number of records in the IMIS 'Conferences' module	447	493
Number of records in the IMIS 'Persons' module	9,757	11,635
Number of records in the IMIS 'Projects' module	1,266	1,376
Number of records in the IMIS 'Maps' module	47	108
Number of records in the IMIS 'Infrastructure' module	0	41

2007	2008	2009	2010
2,824,697	4,096,349	3,692,082	4,125,751
227,606	210,343	214,947	275,386
166,660	912,389	96,059	430,047
29.27	29.97	35.27	*36.62
238	248	250	245
29	25	31	30
17	18	13	**15
209	245	199	167
12	20	25	17
852	2,537	2,656	2,170
337	96	388	387
501,428	563,980	643,801	829,045
3,258,496	3,423,188	4,541,519	3,722,787
163	158	155	152
11,390	8,813	9,899	5,534
683	498	431	***461
2,800	4,500	5,300	6,890
10,598	22,845	66,151	53,818
96	96	97	97
1,036	927	810	****879
60	78	123	165
4,773,200	5,487,262	6,569,633	7,704,497
6,534	6,843	7,349	9,562
11.02	12.12	19.61	28.40
16,169,975	21,243,488	21,002,506	31,573,130
110,631	119,958	132,515	160,273
1,044	1,208	1,498	1,985
6,542	7,368	7,656	8,965
653	795	875	2,287
14,359	17,026	18,416	21,180
1,906	2,196	2,707	3,196
899	919	976	2,666
46	46	50	55

* = 18,36 permanent and 18,26 temporary FTE; 19,81 scientific and 16,80 administrative employees (work placements and 8.5 student employees not included)

** including 4 'VLIZ Special Publications', 5 reports, 4 co-publications, and an active contribution to 2 commercial publications

*** Out of 461 requests 97% could be supplied: 40% from the library's own collection, others mainly from networks such as IAMSLIC, Antilope/Impala and Subito Germany.

**** 394 researchers + 485 students and other passengers

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 2010

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 Goossens*, general director of DAB Fleet division of MDK
- Ms *Ilse Hoet*, department manager of the Department of Mobility and Public Works
- Mr *Jean Lanckneus*, marine geology consultant, Magelas NV
- Ms *Magda Vincx*, full professor, Ghent University
- Mr *Philip Van Avermaet*, head of department Research of the Department of Economy, Science and Innovation

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

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

The three other members are:

- Ms *Ann Overmeire*, innovation coordinator 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

Attend the meeting:

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

General Assembly – end 2010

The General Assembly is currently composed as follows:

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

The eight voting members appointed by the Flemish Government are:

- Prof Dr *Patric Jacobs*, Ghent University
- Prof Dr *Willy Baeyens*, Vrije Universiteit Brussel
- Prof Dr *Jean Berlamont*, Katholieke Universiteit Leuven
- Prof Dr *Ernest Schockaert*, Hasselt University
- Prof Dr *René Van Grieken*, University of Antwerp
- Prof Dr *Magda Vincx*, Ghent University
- 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 *Guido Decorte*, member of the Provincial Executive
- Mr *Bart Naeyaert*, member of the Provincial Executive
- Mr *Patrick Braet*, Provincial Treasurer
- Mr *Jan Denys*, manager 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.

Scientific Committee - end 2010

The Scientific Committee advises the Board of Directors of VLIZ on all scientific activities and scientific support activities, and assists VLIZ in the formulation of high-quality and scientifically founded advice. In 2010 the Scientific Committee was given a new structure consisting of three interconnected and mutually reinforcing components: a Scientific Board, a Guidance Committee and various Expert groups.

The composition of the VLIZ **Scientific Board** reflects the inter-university and multi-disciplinary character of VLIZ. The Flemish scientific institutions with marine activities each have one representative. The Flemish universities each have one or two representatives, depending on the size of the university and their number of research groups active in a marine discipline.

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

■ *Colin Janssen*

Two delegates from Ghent University (UGent):

■ *Magda Vincx* (substitute: David Van Rooij)

■ *Patrick Sorgeloos* (substitute: Julien De Rouck)

Two delegates from Katholieke Universiteit Leuven (KULeuven):

■ *Filip Volckaert*

■ *Jaak Monbaliu*

One delegate from Vrije Universiteit Brussel (VUB):

■ *Frank Dehairs* (substitute: Marc Kochzius)

One delegate from University of Antwerp (UA):

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

One delegate from Hasselt University (UHasselt):

■ *Tom Artois* (substitute: Natalie Beenaerts)

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

■ *Kris Cooreman* (substitute: Bart Sonck)

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

■ *Jurgen Tack* (substitute: Eric Stienen)

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

■ *Roger Dijkmans* (substitute: Bart Deronde)

One delegate from the Flemish Environment Agency (VMM):

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

One delegate from the Flemish Heritage Institute (VIOE):

■ *Marnix Pieters* (substitute: Tom Lenaerts)

One delegate from the Flanders Hydraulics Research (WL):

■ *Frank Mostaert* (substitute: Toon Verwaest)

Attending the meetings:

The director and a reporter of the Flanders Marine Institute (VLIZ):

■ *Jan Mees*, managing director

■ *Jan Seys* (substitute: Nancy Fockedeey)

A representative of the Department of Economy, Science and Innovation (EWI):

■ *Rudy Herman*

VLIZ Contact Information

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Colophon

This 2010 Annual Report of the Flanders Marine Institute (VLIZ) has been presented for approval to the Board of Directors and the General Assembly on 27 April 2010.

Coordination and final editing

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

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

Photography

The images used to separate the chapters were taken by Misjel Decler. Following the International Year of Biodiversity 2010, we wanted to put the local marine biodiversity in the spotlight in this Annual Report 2010.

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www.vliz.be/EN/About_VLIZ/AnnualReport

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Vlaams Instituut voor de Zee *Flanders Marine Institute*

VLIZ COLLECTED REPRINTS

Marine and coastal research in Flanders

Vol. 40 (2010)

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-ROM as a supplement to the VLIZ Annual Report.

The CD-ROM enclosed in the 2010 Annual Report contains an overview of volume 40 (2010). 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-ROM 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:

Dr Jan Mees, managing director

Flanders Marine Institute (VLIZ)

InnovOcean site, Wandelaarkaai 7, B-8400 Oostende, Belgium

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E-mail: info@vliz.be

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E-mail: library@vliz.be

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