

Annual Report 2008

FLANDERS MARINE
INSTITUTE
VLIZ

Annual Report 2008

FLANDERS MARINE INSTITUTE VLIZ

*for everyone fascinated
by the sea and the coast*

www.vliz.be

Oostende, April 2009



with the support of:



Vlaamse overheid



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It is gradually becoming tradition. When summer approaches, the Flanders Marine Institute (VLIZ) issues its annual report. This publication traditionally gives a colourful and well-illustrated account of the all-round and dynamic operation of this coordination and support platform for coastal and marine sciences. I am sure you will enjoy the striking pictures which demonstrate much better than text how VLIZ managed to rally a close network of enthusiastic people. The richly illustrated first part also provides information on the most remarkable activities and productions of each of the six divisions of VLIZ and of the UNESCO/IOC Project Office for IODE. You may be impressed by the performances expressed in figures on the last pages of the annual report, which primarily indicate how VLIZ evolved into a lasting, healthy and zestful scientific institute eager to be of service to marine and coastal researchers in Belgium and abroad.

At the back of this annual report you will furthermore find a CD-ROM featuring the Collected Reprints 2008, the scientific output of Belgian marine scientists from the last calendar year. The 176 references contained in this edition illustrate once more that marine research is alive and kicking in Belgium!

2008 was also a very special year. It was the year in which the additional investment subsidy for 2008-2009 was approved. A subsidy which allows the purchase and renovation of additional land-based facilities on the East Bank in Oostende and enables VLIZ to serve the Flemish marine scientists even better in the future. This additional funding of two times 1.1 million euros will also be used to purchase new research equipment for the new research vessel Simon Stevin and the renovation of the offices at Wandelaarkaai.

2008 will also be remembered as the year in which VLIZ had the pleasure of welcoming its new neighbours of the Marine Board of the European Science Foundation (ESF) in Oostende. Thanks to the relocation of this secretariat from Strasbourg the VLIZ home base, the InnovOcean site at Wandelaarkaai, can now be called a real multidisciplinary and international cluster of marine and coastal institutions.

In 2009 the Flanders Marine Institute will be subject to an external audit. This audit is to result in a new management agreement with the funding governments in autumn 2009. And on 27 November 2009 we celebrate the 10th anniversary of VLIZ in the Thermae Palace Hotel in Oostende. The present report clearly demonstrates that this institute is 100% ready for it!

Enjoy the report!

Paul Breyne
Governor of West Flanders
Chairman of the VLIZ

Jan Mees
Manager of VLIZ

VLIZ in figures

22,845

Number of downloads from OMA,
the Open Marine Archive

238

Number of sailing days within the scope
of marine scientific research

6,843 (12Gb)

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

2,537

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

20

Number of formal national cooperation
agreements

2,247

Number of seastats online

16,000

Number of images in VLIZ photo galleries

4,505

Number of subscribers to the journal
'De Grote Rede'

130,000

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

4,096,349

Turnover of VLIZ (EUR)

VLIZ in a timeline

A selection of major events in 2008



© VLIZ-Decler

JANUARY

List 'non-native species of the Belgian part of the North Sea' and information sheets online



© KU Leuven-Van de Putte

FEBRUARY

Symposium 'A Future for Fisheries' (05.02)



MARCH

Brochure 'UGent-aan-Zee': marine research at the Ghent University



© VLIZ

APRIL

Expedition e-learning project Planet Ocean (07-11.04)



© VLIZ - De Kievith

MAY

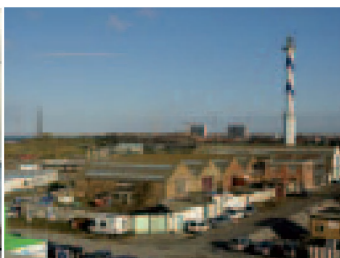
Official opening MB/ESF in Oostende (14.05)



© VLIZ - De Kievith

JUNE

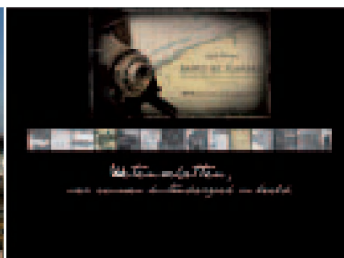
Launch of 'Zeekrant': a free summer newspaper (12.06)



© VLIZ - De Kievith

JULY

New addendum to management agreement: investment subsidy



AUGUST

Website 'Wetenschatten' online: scientific treasures of four centuries of coastal research



SEPTEMBER

Guide 'Koers naar zee': overview of educational activities at the coast



© VLIZ

OCTOBER

Marine stand on science fair 'Wetenschapsfeest' (17-19.10)



© Zintzen

NOVEMBER

130.000 marine species described in WoRMS



© Loy

DECEMBER

Seminar for coastal guides (13.12)

UNESCO/IOC Project for IODE in figures

8

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

150

Number of students

51

Number of nationalities represented on
the courses

198

Number of both short- and longterm
guest researchers

1,595

Number of nights spent by trainees
and experts

105

Number of dynamic websites hosted

12

Number of available servers

1,282

Subscribers to the Project Office mailing
list system

40

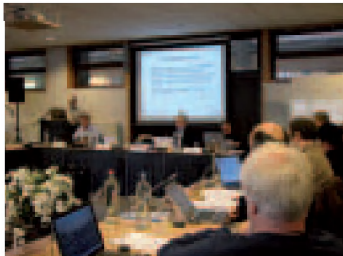
Number of computers available for
training courses

9

Number of employees for 'IOC Project
Office for IODE' at the end of 2008

UNESCO/IOC Project Office for IODE in a timeline

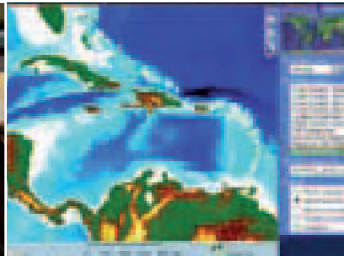
A selection of major events in 2008



© IODE

JANUARY

Development of common standards for oceanographic data exchange world-wide (21-25.01)



© IODE

FEBRUARY

Mariene Atlas for Caribbean region developed (13-20.02)



© IODE

MARCH

Belgian M.Sc. students (VUB, UGent) trained in oceanographic data management (17-18.03)



© IODE

MAY

IODE becomes active in the Pacific Ocean region: first ODIN-PI training (13-17.05)



© IODE

JUNE

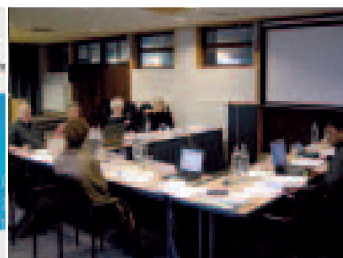
Third SeaDataNet Training (16-19.06)



© IODE

OCTOBER

Development of OceanTeacher WIKI



© IODE

NOVEMBER

GE-MIM-X in Oostende: 'Group of Experts on Marine Information Management' defines plan of activities for coming 2 years



© IODE

DECEMBER

GIS course for M.Sc. students ECOMAMA (VUB) (24.11, 08.12 and 12.12)

Core tasks and structure

Established in 1999, the Flanders Marine Institute (VLIZ) has evolved into the **central coordination and information platform for marine scientific research in Flanders**. VLIZ also serves as an international point of contact in this respect. As VLIZ does not have a mandate to conduct research itself, it has the opportunity to perform a whole range of scientific support tasks such as managing a data centre, providing logistic assistance to researchers, managing a marine library, coordinating and networking and offering a range of marine information to various target groups. By concluding cooperation agreements with Flemish research groups and authorities this support can be developed further and be integrated into national and international networks.

Strategic objectives

The Flanders Marine Institute (VLIZ) is an autonomous institute with the legal status of a non-profit organisation under Belgian law that receives an annual subsidy from the Flemish Community and from the Province of West Flanders. The strategic objectives and activities are defined in five-year management agreements with the financing authorities (1999-2004; 2005-2009). VLIZ has the following **four strategic objectives**:

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

Principles and preconditions

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

Main activities

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

- Supporting marine scientific research by making use of the research vessel 'Zeeleeuw' and other research equipment and infrastructure for common use within the scope of marine scientific research. VLIZ also contributes to the (inter) national planning, management and efficient use of marine research infrastructure.
- Managing and further developing the Flanders Marine Data and Information Centre (VMDC). The centre collects different kinds of data, implements international standards and distributes data in Belgium and abroad. Within this context the centre processes and provides access to external data and collects its own data. VMDC is an integral part of international networks and contributes to the development of international standards for managing and exchanging data and information.
- Managing a multimedia centre that is developing a collection of marine scientific and coastal literature and multimedia.

- Facilitating a network of marine scientists and other persons concerned by offering a platform (in the form of the Scientific Committee), organising meetings, congresses and conferences and issuing publications. A core task of VLIZ is to map expertise in Flanders on a permanent basis and to present this expertise both in Belgium and abroad.
- Managing an information desk that provides objective scientific information to scientists and policymakers in Flanders and abroad as well as to teachers, students and interested citizens in Flanders. The information desk answers all questions and furthermore provides information of its own accord by responding to current events and promoting Flemish marine scientific research through exhibitions and open house days, through publications and the website and by organising and co-organising seminars, workshops and symposia.
- Last but not least VLIZ has a special responsibility to take care of the follow-up and management of the financing of the accommodation and support of the IODE Project Office of the Intergovernmental Oceanographic Commission of UNESCO (UNESCO/IOC Project Office for IODE) and of the Secretariat of the Marine Board of the European Science Foundation (MB-ESF). For UNESCO this also concerns the support of training courses for foreign students and experts in oceanographic data management with special attention to the development and operation of early tsunami warning systems and other ocean-related natural phenomena.

Geographic scope

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

Internal structure

As far as internal structure is concerned, this subdivision into main activities translates into **six operational units** within VLIZ, complemented with the activities of the UNESCO/IOC Project Office for IODE. These six units correspond to the main menu sections on the VLIZ website.

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



Achievements in 2008

an overview

Coordin



Coordination



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

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

Addendum to 2005-2009 management agreement

For 2008 and 2009 VLIZ receives an additional investment subsidy from the Flemish Government Department of Economy, Science and Innovation (EWI). The subsidy amounts to 1.1 million Euro a year and is to be used for: (1) the purchase and renovation of the land-based facilities at the Halve Maan site (also see p. 76); (2) the renovation of the VLIZ head offices at Wandelaarkaai; and (3) the purchase of scientific equipment for the new research vessel RV Simon Stevin.

Staff

At the end of 2008 VLIZ employed a total of 36 personnel members (29.97 FTE), comprising 16.83 permanent and 13.13 temporary employees. The number of scientific and administrative personnel amounted to 20.36 and 9.60 respectively.

In the course of 2008 Wim Decock (01.01.08), Angela Diaz (01.04.08) and Marie-Line Villers (13.10.08) joined VLIZ, while in the course of the same year Karl Van Ginderdeuren (01.10.07-31.01.08), Nathalie Daems (01.12.07-15.02.08) and Sherley Rosseel (17.07.07-10.10.08) left the institute.

At the end of 2008 we also said goodbye to two people who had been with us from the very beginning: Nora Roelandt, administrative assistant originally employed at IZWO and active at VLIZ since 01.10.99, wants to explore new horizons in the private sector. Jan Haspeslagh, the VLIZ librarian since 01.05.00, will become an assistant of the central library of Ghent University.

In the summer of 2008 no less than 14 student employees worked at VLIZ for a total of 13 months. In the past year 10 trainees and 2 thesis students were active at our institute.

Overview of VLIZ personnel at the end of December 2008

General operation, coordination and maintenance



Jan Mees
VLIZ general manager



Simon Claus
BeNCoRe coordination



Ingrid Dobbelaere
*administrative assistant -
contact & management
secretariat*



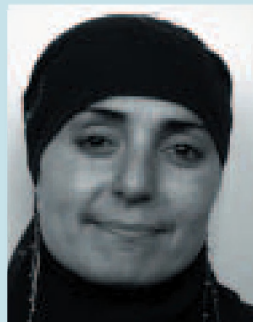
Nathalie Keersebilck
*administrative assistant -
projects*



Dominique Milh
*administrative assistant -
reception & general support*



Nora Roelandt
*administrative assistant -
financial & personnel manage-
ment (till 31.12.08)*



Chedi Minkailova
VLIZ & UNESCO maintenance



Angela Diaz
*VLIZ & Marine Board
maintenance (since 01.04.08)*

Communication & Information



Jan Seys
*communication &
information manager*



Evy Copejans
educational assistant



Nancy Fockedeij
*communication &
information assistant*

Data Centre



Francisco (Tjess) Hernandez

data centre manager, network manager, operational data & monitoring



Ward Appeltans

data centre project manager



Nathalie De Hauwere

scientific assistant - OMES & Scheldemonitor



Heidi Debergh

scientific assistant



Wim Decock

scientific assistant - MarBEF (since 01.01.08)



Klaas Deneudt

data centre project manager



Annelies Goffin

scientific assistant - OMES, INRAM, Westbanks & Quest4D



Johan Mares

IT specialist & developer



Roeland T'Jampens

IT specialist & developer - IMIS



Leen Vandepitte

scientific assistant - MarBEF



Ruth Vandepitte

administrative assistant - information & data



An Vanhoorne

scientific assistant - Scheldemonitor



Bart Vanhoorne

IT specialist & developer - MarBEF



Marie-Line Villers

IT specialist & developer - IMIS & IMERS

Research infrastructure



André Cattijse

research infrastructure manager

Figures & Policy



Ann-Katrien Lescrauwaet

figures & policy manager

Library



Jan Haspeslagh

librarian (till 31.12.08)



Chilekwa Chisala

assistant librarian

Scheldt Information Centre - Flanders



Bregje Beyts

SIC - Flanders manager



Melissa Prosec

SIC - Flanders project assistant (till 09.01.09)

UNESCO/IOC Project Office for IODE



Kristin de Lichtervelde

UNESCO/IOC administrative assistant



Annelies Groen

UNESCO/IOC administrative assistant



Wouter Rommens

UNESCO/IOC training course coordinator



Marc Van Crombrugge

UNESCO/IOC IT specialist & developer

Marine Board – European Science Foundation



Dina Eparkhina

ESF/MB administrative assistant

Students, trainees and student employees active at VLIZ in 2008

Students

Sara Behiels	<i>HoGent, Agro- en biotechnologie - Groenmanagement</i>	<i>B.Sc. student (2007-2008)</i>
Elisabeth Van Peteghem	<i>UGent, MareLac</i>	<i>M.Sc. student (2008-2009)</i>

Trainees

Niels Andries	<i>HoWest, Toegepaste informatica</i>	<i>trainee data centre</i>
Sara Behiels	<i>HoGent, Agro- en biotechnologie - Groenmanagement</i>	<i>trainee figures&policy</i>
Kevin De Roover	<i>Katholieke Hogeschool Kempen, B.Sc. lerarenopleiding</i>	<i>trainee infodesk – education</i>
Charline D'Hoekers	<i>Universiteit Utrecht, Nederland, Fysische Geografie</i>	<i>trainee figures&policy</i>
Maria Helena Guimarães	<i>Universidade do Algarve, Leonardo Da Vinci programme</i>	<i>trainee data centre trainee figures&policy</i>
Jasper Lanoote	<i>Hogeschool Antwerpen, B.Sc. lerarenopleiding</i>	<i>trainee infodesk – education</i>
Benoit Mialet	<i>Université Paul Sabatier, Toulouse, Frankrijk</i>	<i>trainee data centre</i>
Nathalie Sillis	<i>Katholieke Hogeschool Kempen, B.Sc. lerarenopleiding</i>	<i>trainee infodesk – education</i>
Michiel Smits	<i>SUI O.L.V.-Waver</i>	<i>trainee infodesk – education</i>
Koné Téhéna	<i>Institut de Géographie Tropicale, Abidjan, Côte d'Ivoire</i>	<i>trainee marine library</i>

Student employees

Meggy Bauwens, Hannes De Blauwe, Nathalie De Sutter, Sarah Denys, Maria Helena Guimarães, Eline Haspeslagh, Lieselot Noppe, Kristof Plovie, Annelies Rubben, Mathieu Serruys, Ines Tavernier, Katrien Töpke, Liesbeth Van de Moortel, Elke Vangampelaere

Social events with the VLIZ personnel



Winners and organisers of the first great InnovOcean quiz on 8 February 2008



Regularly the VLIZ and ILVO challenge each other for a friendly indoor football match



Family day at the Antwerp Zoo on 1 March 2008



Home-made paella on 5 September 2008



VLIZ indoor football team at the sports day for Flemish government officials on 18 September 2008



Farewell party for Nora Roeland and Jan Haspeslagh on 18 December 2008

Members

VLIZ is a membership organisation. Everyone who is interested in coastal area 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 other VLIZ publications (special publications, books, posters...); a subscription to the annual Zeekrant (new from the summer of 2008); substantial 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.

At the end of 2008 VLIZ had a total of 248 members, including 175 individual members, 30 students, 35 institutional members and 8 honorary members.

New in 2008 was the organisation of a VLIZ members' day (13 June 2008). At this event, scheduled to be held annually from now on, members are invited to participate in the afternoon programme of the extended Scientific Committee of June, which takes place in the VLIZ buildings on the InnovOcean site. Afterwards the VLIZ annual report is presented and issued officially to all members. The day is concluded with a reception, a perfect opportunity to come in contact with the VLIZ network.

First VLIZ members' day on 13 June 2008, including the presentation of the Annual Report 2007

On 13 June 2008 all VLIZ members had the opportunity to learn more about our activities and to network with employees, directors, scientific advisers and other members at the first VLIZ members' day. The first copy of the VLIZ Annual Report 2007 was presented to the chairman of VLIZ and further copies were subsequently offered to all other persons present. From left to right: Colin Janssen (chairman of the Scientific Committee and vice-chairman of VLIZ), provincial governor Paul Breyne (chairman of VLIZ) and Jan Mees (managing director of VLIZ).



Scientific awards

VLIZ scientific awards

Within the context of its coordinating role VLIZ aims at encouraging marine and coastal scientific research, for example by granting awards for meritorious scientific studies. VLIZ grants one North Sea Award (1000 EUR) and two Marine Sciences Incentive Awards for theses (2x 500 EUR) every year.

The winners of the **VLIZ Thesis Award 2007** were Sarah Denys with her thesis '*Contrasting Holocene sediment succession along the western and eastern part of the Belgian coast: origins and consequences*' and Virginie Demaerel with the work '*Research on the distribution of amphipods of the genus *Bathyporeia* (Crustacea, Amphipoda), using genetic markers*'.

Dr Sofie Vandendriessche won the **VLIZ North Sea Award 2007** for her Master thesis '*Floating seaweed as ephemeral neustonic habitat*'. These awards were presented at the VLIZ Young Scientists' Day 2008 (29.03.08) after a presentation by the laureates.

On the same day the **VLIZ Poster Awards** (value of € 125) were presented as well. Out of a total of 34 posters, the professional jury selected the poster of Michiel Claessens, Els Monteyne, Patrick Roose and Colin Janssen ('*The use of integrative passive samplers as a source of contaminant mixtures in ecotoxicological laboratory experiments*'). The public opted for the poster of Karen Rappé and Magda Vincx ('*Blue mussel and Pacific oysters in Belgian coastal harbours as test organisms for environmental stress*').



© Sarah Denys



© VLIZ - Decler

Delcroix Prize 2007

The international biannual Dr Delcroix Prize has a value of € 12,500 and is granted by the non-profit organisations HYDRO and VLIZ to a researcher or team of researchers in recognition of an original scientific study on health aspects of the marine environment in the broadest possible sense.

Prof Dr Jan Tytgat (Head of the Laboratory of Toxicology and Food Chemistry of Katholieke Universiteit Leuven) won the 2007 edition. His entry '*Toxins from jellyfish and sea anemones: a 'sea' of molecules with therapeutic potential*' illustrates the pioneering research into the effect of jellyfish and sea anemone toxins. If people are stung while bathing in the sea, this may result in skin irritation, burning pain, inflammations, and with some species even death. It is remarkable that we have only a rather limited knowledge of the poisoning mechanism and consequently of the treatment methods to be followed. It is exactly in this field that Professor Tytgat and his team of Katholieke Universiteit Leuven have achieved a major breakthrough. In view of the worldwide increase in the number of jellyfish due to overfishing and climate effects, treatment of jellyfish stings is more than ever a hot topic.

On Friday 11 April 2008 the Dr E. Delcroix Prize 2007 was awarded to the laureate during a solemn ceremony at the Belgian Marine Institute for Orthopaedics (BZIO) in Oostende. This institute is the ideal location in view of the inseparable connection between the institute and the Delcroix family. As a matter of fact, it was Dr Edouard Delcroix, a famous Belgian orthopaedic surgeon and pioneer in thalassotherapy (1891-1973), who was the source of inspiration of this prize. From 2010 on, the Dr E. Delcroix Prize will be awarded every three years and amount to € 25,000.



Katholieke Universiteit Leuven professor Jan Tytgat awarded with prestigious 'Dr Edouard Delcroix Prize' for pioneering research into the effect and treatment of jellyfish stings.

The international prize is granted by non-profit organisations HYDRO and VLIZ to a researcher or team of researchers in recognition of an original scientific study on health aspects of the marine environment in the broadest possible sense. With their entry 'Toxins from jellyfish and sea anemones: a 'sea' of molecules with therapeutic potential' Prof Dr Jan Tytgat and his research group take major steps in the unravelling of the effect of jellyfish and sea anemone toxins and of the therapeutic treatment thereof.



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Cooperation agreements and networks

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

On 22 October 2008 VLIZ entered into a new national cooperation agreement with Université Libre de Bruxelles regarding the development and management of databases in connection with mangrove ecosystems (Prof Dr F. Dahdouh-Guebas).

This means that VLIZ has concluded a total of 20 cooperation agreements so far. This number does not include the respective management agreements with the Department of Economy, Science and Innovation (2005-2009, and VLIZ as structural partner within the scope of the 'Science Information and Innovation' Action Plan) and the Province of West Flanders.

Additionally, three other national cooperation agreements were prepared in the course of 2008, namely with:

- The Flemish Environment Agency (VMM) regarding the development and management of databases in connection with the monitoring of transitional and coastal waters.
- The Shipping Assistance Division of the Agency for Maritime and Coastal Services (MDK) concerning the disclosure of shipping data for scientific research.
- The Royal Zoological Society of Antwerp (RZSA) concerning logistic support, communication and scientific research in connection with marine wildlife.

Overview of the national cooperation agreements (state of affairs at the end of 2008)

UNIVERSITIES

- Universiteit Gent, Department of Biology – biodiversity databases
 - Prof Dr M. Vincx – meiobenthos/macrobenthos/hyperbenthos/epibenthos
 - Prof Dr. E. Coppejans & Prof Dr O. De Clerck – macroalgae
 - Prof Dr W. Vyverman – Protista
 - Prof Dr A. Vanreusel – meiobenthos of the deep sea and Antarctica
 - Prof Dr K. Sabbe – microphytobenthos
- Universiteit Hasselt, Prof Dr E. Schockaert & Prof Dr T. Artois – biodiversity/taxonomic databases
- Katholieke Universiteit Leuven
 - Prof Dr J. Berlamont & Prof Dr J. Monbaliu – hydrodynamics and sediment mechanics databases
 - Prof Dr F. Ollevier & Prof Dr F. Volckaert – marine and estuarine biology databases
- Vrije Universiteit Brussel, Prof Dr N. Koedam & Dr F. Dahdouh-Guebas – mangroves
- Université Libre de Bruxelles, prof. dr. F. Dahdouh-Guebas – mangroves

FLEMISH AND NATIONAL RESEARCH INSTITUTIONS

- Flemish Heritage Institute (VIOE) – maritime archaeology and nautical heritage
- Institute for Agricultural and Fisheries Research, Animal Science Unit, Fisheries Research Area (ILVO – Fisheries) – monitoring data and fisheries biological data
- Research Institute for Nature and Forest (INBO) – information exchange and data management with regard to marine and coastal research
- The MUMM department of the RBINS – cooperation with regard to Zeeleeuw and Belgica

FLEMISH AUTHORITIES

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

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

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

Overview of the national and international networks (state of affairs at the end of 2008)

NATIONAL NETWORKS

- VLIZ Scientific Committee
- editorial board and etymological expert team Grote Rede
- presidency of the Executive Committee and Consultative Group of the Coordination Centre on Integrated Coastal Zone Management (CC-ICZM)
- secretariat of the Belgian Network for Coastal Research (BeNCoRe)
- 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)
- presidency of Flanders Marine vzw

INTERNATIONAL NETWORKS

- member of the IODE data centre network (UNESCO/IOC)
- host of the UNESCO/IOC Project Office for IODE
- member of the Partnership for Observation of the Global Oceans (POGO)
- member of the POGO News & Information Group
- representative of the Research Foundation – Flanders in the Marine Board of the European Science Foundation (ESF)
- member of the executive committee of the Marine Board
- member of the Marine Board Communications Network (MBCN)
- member of the European Centre for Information on Marine Science and Technology (EurOcean)
- representative of the Department of Economy, Science and Innovation in the FP6 ERA net project MarinERA
- member of the European Marine Research Stations Network (MARS)
- member of the European Research Vessel Organisation (ERVO)
- member of the European Federation of Marine Science and Technology Societies (EFMS)
- member of the European Association of Aquatic Sciences Libraries and Information Centres (EURASLIC)
- member of the International Association of Aquatic and Marine Sciences Libraries and Information Centres (IAMSLIC)
- national input centre of Aquatic Sciences and Fisheries Abstracts (AFSA) of the Food and Agriculture Organisation (FAO)
- member of the European Census of Marine Life (EuroCoML)
- member of the executive committee and data centre of the EU Network of Excellence ‘Marine Biodiversity and Ecosystem Functioning’ (MarBEF)
- member of the Society for the Management of European Biodiversity Data (SMEBD)
- member of the executive committee of the European Register of Marine Species (ERMS)
- member of the ICES ‘Study Group on Biodiversity Science’ (SGBIODIV)
- member of the steering committee of the World Register of Marine Species (WoRMS)
- partner of the ‘Sea Data Network’ (SeaDataNet)
- partner of the ‘International Coastal Atlas Network’ (ICAN)
- partner of the Global Sea Level Observing System Network (GLOSS)
- coordinator of the European node (EurOBIS) of the Ocean Biogeographic Information System (OBIS) of the Census of Marine Life (CoML)
- host of the Scheldt Information Centre – Flanders (SIC)

VLIZ Tour of Flanders

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

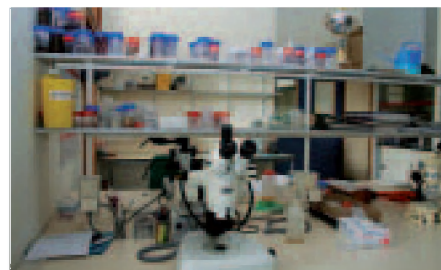
In the course of 2008 we visited five research groups and administrations. In this manner we established contacts with 252 full-time researchers.

Marine research in the region of Flanders: alive and kicking!



With 192 participants from 52 different research groups, the 8th VLIZ Young Scientists' Day on 29 February 2008 can once again be considered a great success. This annual marine happening appears to be the ideal opportunity to collect information on the latest marine research in Flanders and environs.

Date	Name of research group / authority / organisation
9 May	Sea Fisheries Service – Flemish Government, Agriculture and Fisheries Department, Agriculture and Fisheries Policy division
4 September	Ghent University – Marine Biology Section
27 October	Flemish Heritage Institute (VIOE) – Research, Archaeology and Natural Sciences division, Archaeology team, West Region, Maritime Archaeology and Nautical Heritage
28 November	Université de Liège – ‘Interfaculty Centre for Marine Research’ (MARE); including the Aquarium
4 December	Research Institute for Nature and Forest (INBO)



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Flanders Marine takes off



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The region of Flanders features a strong concentration of knowhow and activities with regard to marine and maritime sciences and technology. Authoritative knowledge and experience is present in the field of marine sciences, dredging works, port management, offshore wind energy, shipping, sand extraction, fisheries, aquaculture and environmental and engineering consultancy. Stimulated by the Flanders Marine Institute (VLIZ), with RESOC-Oostende, the Provincial Development Agency of West Flanders, the Innovation Centre of West Flanders, the Port of Oostende, VOKA and Baggerwerken Decloedt as partners, efforts are made to combine the forces of all actors. As a cluster of companies and government authorities, this extensive network is better able to present itself to public authorities, colleagues and competitors.

The strategic objectives of Flanders Marine are: (1) support of regional marine and maritime knowledge development, (2) promotion of networking and knowledge transfer between researchers and companies, (3) enhancement of visibility of Flemish marine and maritime expertise, and (4) economic valorisation of knowledge by means of marketable products and services.

Representatives of research institutes, government authorities and the business community met in Oostende on 2 December 2008 for the official start of the non-profit organisation. Efforts are now being made to find funds to develop Flanders Marine as a competence pool. As a first step, a feasibility study is commissioned with the IWT (Institute for the Promotion of Innovation by Science and Technology in Flanders).



Partnership for Observation of the Global Oceans - POGO

VLIZ joined the 'Partnership for Observation of the Global Oceans' (POGO) in 2007. This international forum of major oceanographic institutions around the world (e.g. Woodshole Oceanographic Institution, NOAA, Scripps, SAHFOS, NIOZ and IFREMER) aims at promoting and implementing a global ocean observation system. VLIZ also participates actively in the POGO News & Information Group and assists in planning its communication strategy. Jan Mees and Jan Seys attended the POGO-9 meeting at the Bermuda Institute of Ocean Sciences (BIOS) from 8 to 11 January 2008. Our proposal to 'revamp' the POGO website was accepted at this meeting. This new website will be launched in the course of 2009. Read more? www.ocean-partners.org

Official opening of new offices of European Science Foundation Marine Board secretariat

With the opening of the secretariat of the Marine Board of the European Science Foundation (MB-ESF) on 14 May 2008 the InnovOcean site in Oostende boasts an European institute. The festive opening was combined with the first Marine Board Forum, which brought representatives of the major European marine and maritime research institutes, projects and networks to Oostende.



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Marine Board – European Science Foundation

The Marine Board (MB-ESF) was established in 1995 as an independent non-governmental advisory body within the European Science Foundation (ESF). Its main responsibility is to facilitate enhanced coordination between the directors of major European marine institutes, research councils and funding agencies and to develop strategies for marine science in Europe. Through the organisation of networking events and the publication of strategic documents it plays an important role in the marine scientific challenges (such as climate change, marine biodiversity, fisheries and aquaculture, and marine management) Europe is facing today. The Marine Board members include 30 institutes, science foundations and academies from 20 European countries. Belgium is represented within the Marine Board by the Research Foundation Flanders and the Foundation for Scientific Research of the French Community. Since May 2006 Jan Mees has been the Vice-Chairman of the Executive Board. In addition, Jan Seys is active in the 'Marine Board Communications Panel'.



With the official opening of the secretariat of the Marine Board of the European Science Foundation (MB-ESF) in Oostende on 14 May 2008, Belgium boasts yet another European institute. Two years ago the MB-ESF decided to move from Strasbourg to the InnovOcean site on the east bank in Oostende in view of the proximity of the sea and Brussels and in view of the offer of the Flemish Government to invest in accommodation as well as in the support of one administrative employee (Dina Eparkhina). The secretariat is led by Dr Niamh Connolly. It further employs three scientific employees: Maud Evrard, Aurelien Carbonnière and Jan-Bart Calewaert.

The day after the opening (15 May 2008) the MB-ESF organised the first Marine Board Forum in Oostende on the theme 'Marine Data Challenges: from Observation to Information'. Representatives of major marine and maritime European networks (ESONET, EMSO, MerSEA, EuroGOOS, MedGOOS, ECOOP, Euro-ARGO, EuroSITES, SeaDataNet and Marbef) discussed the future of oceanographic data management and the possible establishment of a European Marine Observation and Data Network (EMODNET) during the forum.

At the same time a temporary exhibition was organised to illustrate the marine scientific activities within fields of study such as marine biodiversity and biotechnology; impact of climate change on European seas and coastal areas; remote sensing in shallow coastal ecosystems; modelling in shallow seas; and marine data management. On Saturday 17 May the public at large was also invited to visit the new offices and the exhibition on the site.

Apart from organising and participating in networking events (over 85 in 2008), the MB-ESF organises study groups consisting of European experts that publish strategic 'position papers' on various marine-related current topics. In the course of 2008 the study groups published number 12 on 'Remote Sensing of Shelf Sea Ecosystems' and number 13 'The effects of anthropogenic sounds on Marine Mammals'. In 2008 the MB-ESF also published the 'Vision Document on the European Marine Observations and Data Network (EMODNET)' and the 'MarinERA Publication 7 Future Looks: strategic analyses for new activities'. Further information on the Marine Board can be found on the website www.esf.org/marineboard.



BeNCoRe network – ENCORA

BeNCoRe, the Belgian network for coastal research, funded through the European Coordination Action ENCORA and comprising 35 partner organisations, drew to an end in 2008. The network was intended to enhance communication between coastal and marine researchers on the one hand and between coastal and sea management authorities on the other. The promotion of interdisciplinary coastal and marine research and the increase of the mobility of young researchers were also on the agenda. Some of the major BeNCoRe activities in the 2006-2009 period:

- development of a web portal (www.bencore.be) featuring an interactively searchable inventory of the BeNCoRe members, all kinds of news items and a calendar of interesting events.
- organisation of two BeNCoRe conferences on the future of Belgian coastal research and the use of geographic applications within this research.
- a concerted reaction from the BeNCoRe members to the EU Green Paper 'Maritime Policy'.
- award of 18 short and 2 long travel grants to young professionals in coastal and marine sciences for attending international conferences and workshops.
- development of a Coastal Wiki, an innovative source of marine and coastal information. VLIZ will take care of the technical maintenance of this Coastal and Marine Encyclopaedia even after ENCORA, while several European experts will continue to write and supplement articles.

BeNCoRe explored the possibility of converting this Belgian network into a 'Belgian Coastal and Marine Platform' with the Belgian Federal Science Policy Office. More information will be available by early 2009. At the European level the ENCORA network is merged into a broader European platform that consists of maritime, marine and coastal networks such as EUCC, LOICZ and EUROGOOS. It will be used by the European Committee to develop a univocal, widely supported and scientifically based position on coastal developments. This platform came into existence on 28 November 2008 and translated itself into the 'Venice Declaration'. It will be declared definitively during the EU Maritime Days on 19 and 20 May 2009 in Rome.

International Coastal Atlas Network

In 2008 VLIZ joined ICAN (International Coastal Atlas Network), an informal network that aims to share experiences and to find common solutions to the development of dynamic coastal atlases. The long-term view of this network is to accomplish marine data exchange at a global level for the benefit of end users such as policy makers, coastal planners and other interested parties. Apart from European (European Environmental Agency) and American (NOAA) institutes, intergovernmental organisations (IOC/IODE) are also members of this network. VLIZ puts its technical knowledge and expertise at the disposal of this young, dynamic and quickly evolving network.



Projects

In 2008 VLIZ received external funding for coordination, communication and/or data management in 25 projects (9 projects ended in 2008, 8 started in 2008 and 8 continued in 2008). Most of these projects were carried out in cooperation with research groups.

List of major projects and their funding channels

UNESCO

GLOSS - *Global Sea Level Observing System Network*

For this initiative of the Intergovernmental Oceanographic Commission (IOC) the Flanders Marine data Centre (FMDC) of the VLIZ develops and manages the 'Sea Level Station Monitoring Facility' (www.vliz.be/gauges), reading in the data (in real-time) of 293 tide-gauges distributed in the oceans world-wide.

EU - FP6 and FP7

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

The VLIZ is responsible for the data management and the website of this European Network of Excellence (www.marbef.org), that joins 94 institutes and nearly a thousand marine scientists in Europe.

ENCORA - *European Network on Coastal Research*

The VLIZ hosts and develops the website of this European initiative (www.encora.eu), constructs the Coastal & Marine WIKI (www.encora.eu/coastalwiki) and hosts the secretariat of the Belgian network for coastal research BeNCoRe (www.bencore.be).

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

Professional data centres of 35 countries work together to make the datasets, collected by the Pan-European research fleet and automatic observation systems, available through a unique and efficient distributed data system (www.seadatanet.org). The VLIZ delivers the Flemish data and metadata.

PlanktonNET - *A global plankton resource*

An 'open-access' system to support the European distributed taxonomic data on phytoplankton (www.planktonnet.eu). The VLIZ is responsible for the link with the Network of Excellence MarBEF and the European Register of Marine Species (ERMS).

PESI - Pan-European Species directories Infrastructure

Together with 40 partners the VLIZ data centre cooperates to set-up a web portal to register the knowledge of all known European species. The FMDC co-ordinates the marine section of the project, and develops and hosts the portal (www.eu-nomen.eu/pesi).

LIFEWATCH - e-science and technology infrastructure for biodiversity data

The Research Institute for Nature and Forest (INBO) and VLIZ are responsible for the Flemish contribution to the European Lifewatch project (www.lifewatch.eu).

NIOO-KNAW (The Netherlands)

NIOO-KNAW - Netherlands Institute of Ecology

Project to optimise the data management and data storage of the NIOO, to develop their data portal (<http://data.nioo.knaw.nl>) and to organize data management trainings for the scientists of NIOO.

Federal Science Policy

WESTBANKS - Understanding benthic, pelagic and air-borne ecosystem interactions in shallow coastal seas

The VLIZ is involved in the project for the science communication (project website www.vliz.be/projects/westbanks) and the management of the generated data.

INRAM - Integrated Risk Assessment and Monitoring of micropollutants in the Belgian coastal zone

In this project the VLIZ is responsible for the data management and the development of the project website (www.vliz.be/projects/inram).

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

The VLIZ is involved in some of the science communication activities for the project (a.o. project website www.vliz.be/projects/Quest4D and folder).

ScarMarbin - Regional OBIS node for the Antarctic

The VLIZ is involved in the project to develop and manage the website (www.scarmarbin.be) and the Register of Antarctic Marine Species (RAMS), using some of our data systems.

Federal Public Service Environment – department Marine Environment

BEQI - Benthic ecosystem quality index

The VLIZ develops a website (www.vliz.be/projects/beqi) for the online calculation of the BEQI-index.

Flemish Government – Foreign Affairs Administration

SIBEMA - Scientific and institutional capacity building for implementing European marine policy in the Black Sea Region

A cooperation with the 'Institute of Oceanology' in Varna (Bulgaria) for the support in data and information management, and the implementation of European standards in oceanographic research in Bulgaria and the Black Sea region.

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

Bilateral project with two marine institutes in Ukraine (MHI and IBSS) to exchange expertise on oceanographic data management, to rescue marine data measured in the Southern Seas and to set-up a GRID infrastructure.

Flemish Government – Agency Waterwegen en Zeekanaal NV

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

The VLIZ takes care of the integrated OMES data base and is responsible for its redistribution through a.o. the OMES website (www.vliz.be/projects/omes) and a seminar.

Flemish Government – Maritime Access division

SCHELDEMONITOR - *Flemish-Dutch knowledge platform research and monitoring Scheldt*

The website www.scheldemonitor.org offers knowledge, information and soon also cross-bordering research and monitoring data of the Scheldt estuary.

Flemish Government - department of Economy, Science and Innovation (EWI)

Planeet Zee - *e-learning project on oceans for youngsters between 16 and 19 years old*

Digital platform (www.planeetzee.org) with 21 learning modules and a competition element. The prize for the winning class is a real expedition on the research vessel Zeeleeuw.

Ik Heb Een Vraag - *An online science information portal*

The VLIZ is one of the partners setting up and maintaining the website (www.ikhebeenvraag.be), where the public can ask their multidisciplinary scientific questions.

Flemish Heritage Institute (VIOE)

PANESI - *Oostend shipyard in the 19th and 20th century*

Project in subcontract of the VIOE to support the typological research based on the archive Panesi.

Province of West Flanders

Wetenschappen - *Four centuries of coastal research in the picture*

Permanent redistribution of the scientific heritage on the marine research in Flanders (www.wetenschappen.be).

Zee van Toen - *Oral and ecological history of the southern North Sea*

Project to collect the ecological history of the southern North Sea (1930 - 1980) through the targeted interviewing of fishermen:
www.west-vlaanderen.be/dezeevantoen.

Info



Infodesk



© Decler / Estuary of the IJzer river

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

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

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

Organisation of seminars, workshops, symposia and other events

In 2008 VLIZ organised, co-organised and facilitated 20 events related to marine or coastal research. It concerns 5 international meetings/workshops, 2 international symposia/conferences and 13 local events (seminars, press conferences, an inauguration or launch, a prize award ceremony, a solemn ceremony). A total number of 2,537 people attended these events.

A future for a fisheries industry in a worldwide crisis?



The symposium 'A future for fisheries?', held in Leuven in the presence of the renowned fisheries biologist Daniel Pauly, attracted 290 participants from Belgium and abroad.

Overview of events (co)organised by VLIZ in 2008

© CDK



31 January 2008

Meeuwen@Kust Seminar

InnovOcean site, Oostende (93 participants)

Provision of scientific information on 'the gulls' at the Belgian coast and their evolutions, mapping of the nuisance and consideration of solutions to deal with the bottlenecks.

co-organisation in cooperation with the Coordination Centre on Integrated Coastal Zone Management

www.meeuwenindestad.be

© KULeuven - Von de Pelt



5 February 2008

A future for fisheries? Towards effective strategies for sustainability

Max Weber Auditorium, Katholieke Universiteit Leuven, Leuven (290 participants)

Symposium on the worldwide crisis in the fisheries industry on the occasion of the honorary doctorate awarded by Katholieke Universiteit Leuven to fisheries biologist Daniel Pauly (Fisheries Centre, University of British Columbia, Canada).

co-organisation in cooperation with KULeuven, RMCA, RBINS, ILVO-Fisheries

www.vliz.be/NL/HOME&id=273

© VLIZ - Decler



29 February 2008 *

VLIZ Young Scientists' Day 2008

Provinciehuis Boeverbos, Brugge (201 participants)

Annual marine meeting for mainly 'young' researchers from the North Sea region.

www.vliz.be/NL/home&id=310

© UGent



7-8 March 2008

UGent-aan-Zee

Ghent University, Gent (250 participants for the solemn ceremony)

Ghent University marine research groups open their doors with a solemn ceremony on 7 March.

co-organisation in cooperation with UGent

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11 April 2008 *

Press conference: Planet Ocean expedition

Fleet Division, Oostende (50 participants)

The winning class of the new educational project 'Planet Ocean' returns from its expedition and is full of stories.

co-organisation in cooperation with Fleet Division, SHE Consultancy, Studio Bal Gehakt

www.vliz.be/vmdcdata/photogallery/planeetzee.php

© VLIZ - De Kievit



11 April 2008 *

Award of the Dr Edouard Delcroix Prize

BZIO, Oostende (120 participants)

Toxicologist Jan Tytgat of Katholieke Universiteit Leuven wins the prestigious prize for his pioneering research into the effects and treatment of jellyfish stings.

co-organisation in cooperation with Hydro vzw

www.vliz.be/NL/Over_het_VLIZ/Prijs_Delcroix_2007

* VLIZ as principal organiser



21 April 2008 *

Press conference: Flanders' Aquaculture in the world

Errerahuis, Brussel (50 participants)

Promotion of innovative aquaculture activities in Flanders (research, industry, training and development cooperation) on the eve of the European Seafood Exposition in Brussels.

co-organisation in cooperation with ASEM Aquaculture Platform, INVE Aquaculture, Marine Harvest, MOANA and the Flemish Government Department of Economy, Science and Innovation



6 May 2008

Press conference: ikhebeenvraag.be

RBINS, Brussel (80 participants)

Official launch of the online information portal designed to answer multidisciplinary scientific questions of the public at large. In the presence of Minister Patricia Ceysens and students of Vrije Basisschool De Meidoorn in Eeklo.

co-organisation in cooperation with RBINS, BIRA, INBO, ITM, IMEC, KULeuven, RMCA, ROB, National Botanic Garden of Belgium, UA, UGent, BIB, VUB and the Flemish Government Department of Economy, Science and Innovation
www.ikhebeenvraag.be



14 May 2008

Opening of Marine Board secretariat

InnovOcean site, Oostende (108 participants)

Inauguration of the secretariat of the Board of the European Science Foundation in Oostende.

co-organisation in cooperation with Marine Board - European Science Foundation



15 May 2008

Marine Board Forum: "Marine Data Challenges: from Observation to Information"

InnovOcean site, Oostende (94 participants)

First Marine Board Forum where representatives of major marine and maritime European networks discussed the future of oceanographic data management and the possible establishment of a European Marine Observation and Data Network (EMODNET).

co-organisation in cooperation with Marine Board - European Science Foundation
www.esf.org/research-areas/marine-board/marine-board-forum/marine-board-forum-may-2008.html



30 May 2008 *

Second BeNCoRe conference: Geographic Information Systems in Coastal and Marine Research and management

Provinciehuis, Leuven (102 participants)

Belgian coastal researchers meet each other and draw attention to the use of geographic information systems for coastal and marine research and management.

co-organisation in cooperation with BeNCoRe, ENCORA
www.bencore.be/index.php?contentid=43&mid=64

* VLIZ as principal organiser



6 June 2008 *

De Schelde meten, de toekomst weten?

Hof van Liere, UA, Antwerpen (113 participants)

A view into the future of the River Scheldt, based upon 10 years of expertise within the OMES project.

co-organisation in cooperation with Ecosystem Management Research Group of UA

www.vliz.be/imis/imis.php?module=conference&confid=770



12 June 2008 *

Press conference: Zeekrant 2008

InnovOcean site, Oostende (46 participants)

Official launch of the first edition of the free summer newspaper with all kinds of petty facts about a wide range of marine subjects intended for coastal tourists.

co-organisation in cooperation with the Province of West Flanders

www.vliz.be/docs/zeekrant/zeekrant2008.pdf



13 June 2008 *

VLIZ members' day

InnovOcean site, Oostende (54 participants)

VLIZ presents its yearbook to its members and offers the possibility to network with VLIZ employees and members; first edition in 2008.



20-21 June 2008 *

Marine Taxonomy Workshop

InnovOcean site, Oostende (55 participants)

Stimulation of networking and involvement of editors and data managers of the world register of marine species (WoRMS).

co-organisation in cooperation with MarBEF, GBIF and OBIS

www.marinespecies.org/workshop



17 September 2008

Symposium on the East Bank of Oostende

InnovOcean site, Oostende (142 participants)

Presentation of the draft coastal zone plan for the East Bank of Oostende. In the presence of Minister-President Peeters.

co-organisation in cooperation with Buiten Goed, City of Oostende, Port of Oostende, Erfgoed Vlaanderen, Natuurpunt, C-Power and the Coastal Division of MDK

www.oostendeoosteroever.be



10-15 November 2008 *

Urban design workshop 'Landscaping the East Bank of Oostende' - an international academic exercise

InnovOcean site, Oostende (50 participants)

A European community of architecture students create various concepts for a landscape design in which they have to combine the rich cultural, maritime and natural heritage of the East Bank of Oostende.

co-organisation in cooperation with Sint-Lucas, AGSO and Willy Versluys



11-15 November 2008

World Conference on Marine Biodiversity

Red Sea Auditorium, Valencia, Spain (486 participants)

World congress with presentation of the latest finds in the field of marine biodiversity and ecosystem functions.

co-organisation in cooperation with NIOZ, EcoServe, NIOZ

www.marbef.org/worldconference/index.php

2 December 2008 *

Start of Flanders Marine

VLIZ, Oostende (48 participants)

Launch of the cluster of companies and government authorities active in the marine and maritime industry in Flanders.

co-organisation in cooperation with Flanders Marine, RESOC-Oostende, Provincial Development Agency of West Flanders, West Flanders Innovation Centre, Port of Oostende, VOKA and Baggerwerken Decloedt



13 December 2008 *

Seminar for coastal guides

VLIZ, Oostende (105 participants)

*Guides from the entire coast met for the first time so as to learn to know each other and to inform themselves about the activities of guides at the sea.*co-organisation in cooperation with the Coastal Environmental Education Centre, the Province of West Flanders, the Lange Nelle guide association and Horizon Educatief
www.vliz.be/NL/infoloket/gidsendag

* VLIZ as principal organiser

Large stand on the goods and services of the sea attracts the public of the science fair to marine research

At the Flemish science fair 'Wetenschapsfeest' from 17 to 19 October 2008 in Nekkerhallen, Mechelen, school classes and families discovered how fascinating science can be. In cooperation with a dozen marine research groups VLIZ built a 200 sq m marine stand where visitors could enjoy interactive demonstrations on the theme 'goods and services of the sea'.



Participation in public events

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

Date		Target group
8 March 2008	UGent-aan-Zee <i>UGent, Gent</i>	Public at large
19 March 2008	Marine Day for teachers <i>Horizon Educatief, Oostende</i>	Teachers
22 March 2008	Lenteprikkel – beach cleaning event <i>Coordination Centre on Integrated Coastal Zone Management, in most coastal municipalities</i>	Public at large
16 and 18 April 2008 5 May 2008	Educational round trips with the Zeeleeuw within the scope of the Week of the Sea (6) <i>Horizon Educatief and the Nature and Environmental Education department (NME) of the Province of West Flanders</i>	Primary education
6 May 2008	Educational round trips on board the Zeeleeuw within the scope of the Year of the Dolphin (2) <i>Natuurpunt</i>	Primary education
17 May 2008	InnovOcean site open house & exhibition <i>Marine Board, Oostende</i>	Public at large
22-25 May 2008	Ostend at Anchor <i>Oostende</i>	Public at large
5 July 2008	Flemish Harbours Open House Day <i>Post Foxtrot, Oostende</i>	Public at large
13 September 2008	Oostende Fisheries Day <i>Fish Market, Oostende</i>	Public at large
12 October 2008	Secondary Education Teachers' Day <i>Technopolis, Mechelen</i>	Teachers
17-19 October 2008	Science Celebration <i>Technopolis, Mechelen</i>	Public at large
15 November 2008	Congress of the Science Teachers Association (VELEWE) <i>VELEWE, Gent</i>	Teachers
Etc.	speeches for target groups by VLIZ employees all over Belgium	Public at large, teachers, NME...

Publications

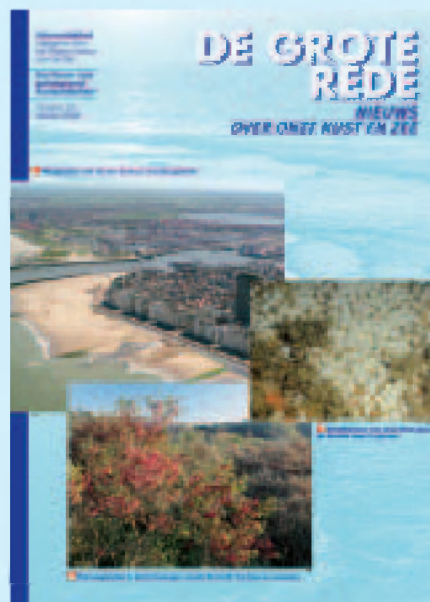
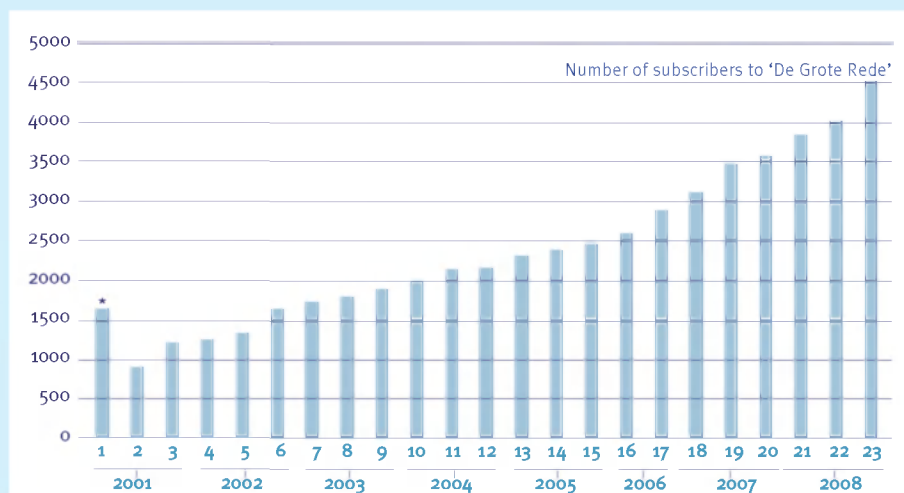
The electronic newsletter **VLIZINE** is published approximately every month and reports on VLIZ activities as well as on the activities of marine research and policy groups in Flanders. The publication is mainly intended for coastal and marine scientists and other interested coastal actors. The publication contains announcements of future events, references to recent publications, vacancies and news on fairs and funds, draws attention to recent and historical Flemish marine research and reports on general local and international coastal and marine news.

In 2008 a total of 7 issues were published, comprising a total of 172 articles. Due to the increasing number of subscribers to VLIZINE the management of this mailing was reorganised. The subscription and unsubscription process for the VLIZINE is now fully automated: sending an empty message to vlizine-subscribe@vliz.be or vlizine-unsubscribe@vliz.be respectively suffices. This digital publication was sent to 986 e-mail addresses at the end of 2008.

The publication on the Belgian coast and the adjacent sea '**De Grote Rede**' has attracted an increasing number of subscribers (4,505 at the end of 2008). The information magazine is produced by some 40 editors experienced in research or in coastal zone policy and recruited from the most widely varying coastal and marine disciplines. This publication is issued three times a year and printed in 6,000 copies. At the end of 2007 the editorial staff launched a survey, to which more than 800 readers responded, which is 22% of the original sample. De Grote Rede appears to be generally highly appreciated because of its sound, popularised and varied cross-sectoral and cross-disciplinary contents. The publication is especially appreciated by scientists, policy makers and educators, but also by large sections of the public at large.


In addition, VLIZ also produces various other publications, either on its own initiative or in cooperation with others. In 2008 VLIZ published a total of 1 'Special publication' (96 pages), 7 reports and 3 other publications and made an active contribution to 4 co-publications. VLIZ contributed to 10 publications intended for the public at large (e.g. Zeekrant - p. 54). VLIZ also paid special attention to education and to guide associations by means of a series of posters, an inventory of activities for class excursions at the coast and digital teaching packages (further details under Educational activities – p. 50-54).

The number of subscribers to De Grote Rede has increased steadily. In 2008 we welcomed 920 new subscribers. Since the beginning of the second 2004-2009 management agreement we have registered 2,500 new subscribers to our publication with topical themes closely related to the concept of 'integrated coastal zone management'. (: the first issue was sent to 1639 addresses with an invitation to subscribe)*



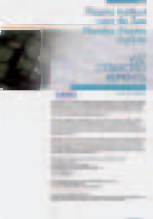

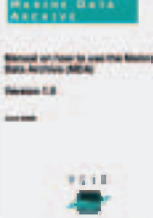



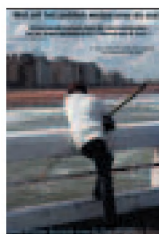
Overview of non-regular VLIZ publications in 2008

VLIZ Special publications (ISSN 1377-0950)

	<p>nr. 40: Mees J. & Seys J. (Eds) – 2008 VLIZ Young Scientists' Day, Brugge, Belgium, 29 February 2008: book of abstracts. <i>VLIZ Special Publication 40. Vlaams Instituut voor de Zee, Oostende, België. 96pp</i></p>
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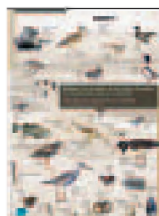
Various publications – Reports

	<p>Mees J. et al. (Eds) – 2008 VLIZ Jaarboek 2007. Voor al wie gefascineerd is door de zee en de kust. <i>Vlaams Instituut voor de Zee (VLIZ), Oostende, Belgium. 112pp</i> ISBN 978-90-812900-2-9</p>
	<p>Mees J. et al. (Eds) – 2008 VLIZ Annual Report 2007. Supporting marine and coastal research in Flanders. <i>Flanders Marine Institute (VLIZ), Oostende, Belgium. 112pp</i> ISBN 978-90-812900-0-5</p>
	<p>Anon. – 2008 VLIZ Collected Reprints: marine and coastal research in Flanders, 37 (2007). <i>Flanders Marine Institute (VLIZ), Oostende, Belgium. [CD-rom]</i></p>
	<p>Cattrijsse A. – 2008 Jaarverslag Zeeleeuw 2007. <i>Vlaams Instituut voor de Zee (VLIZ), Oostende, Belgium. 25pp</i></p>
	<p>Claus S. – 2008 Manual on how to use the Marine Data Archive (MDA). Version 1.0. <i>Flanders Marine Institute (VLIZ), Oostende, Belgium. 38pp</i></p>
	<p>Deneudt K. et al. – 2008 De ScheldeMonitor. Tweede visiedocument voor de uitbouw van een informatiesysteem voor Onderzoek en Monitoring van het Schelde-estuarium. <i>Vlaams Instituut voor de Zee (VLIZ), Oostende, België. 19pp + annexes pp</i></p>

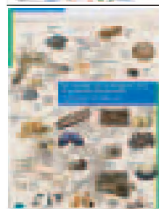
**Seys J. et al. – 2008**

Wat wil het publiek weten over de zee? Verkennende analyse naar de informatiebehoeften bij het breed publiek m.b.t. “kennis zee & kust”. VLIZ Nota. Vlaams Instituut voor de Zee (VLIZ), Oostende, Belgium. 11pp

Various publications – Others

**Tidal flats and creeks of the Low Countries – 2008**

Poster from the series 'Fauna and flora at the Belgian coast'. Vlaams Instituut voor de Zee (VLIZ), EU Network of Excellence Marine Biodiversity and Ecosystem functioning (MarBEF), Instituut voor Natuur en Bosonderzoek (INBO), Agentschap Natuur en Bos (ANB), Schelde InformatieCentrum (SIC), Oostende, België. [A1 poster]

**The floodmark at the Belgian coast – 2008**

Poster from the series 'Fauna and flora at the Belgian coast'. Vlaams Instituut voor de Zee (VLIZ), EU Network of Excellence Marine Biodiversity and Ecosystem functioning (MarBEF), Coördinatiepunt Duurzaam Kustbeheer (CP-DKB) en de Belgische Strandwerkgroep (SWG), Oostende, België. [A1 poster]

**Soft substrates at the Belgian coast – 2008**

Poster from the series 'Fauna and flora at the Belgian coast'. Vlaams Instituut voor de Zee (VLIZ), EU Network of Excellence Marine Biodiversity and Ecosystem functioning (MarBEF) en Sectie Mariene Biologie/Universiteit Gent (MarBioI), Oostende, België. [A1 poster]

VLIZ Co-Publications

**Goffin A. et al. (Eds) – 2008**

UGent aan Zee. Vlaams Instituut voor de Zee (VLIZ), Oostende, België. 96pp. ISBN 978-90-812900-1-2

**Flanders' Aquaculture in the world – 2008**

Vlaams Instituut voor de Zee, Marine Harvest, INVE Aquaculture, MOANA, ASEM Aquaculture Platform en departement Economie, Wetenschap en Innovatie van de Vlaamse overheid (EWI)

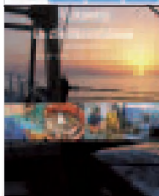
**Seys J. & Copejans E. (Eds) – 2008**

Zeekrant 2008. Annual summer newspaper issued by Flanders Marine Institute (VLIZ) and the Province West Flanders, Oostende, Belgium. 8pp

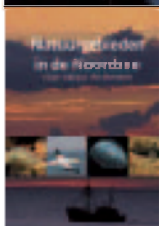

Copejans E. et al. (Eds) – 2008

Koers naar zee: an excursion guide for secondary education teachers. Overview of learning methods and activities at the coast on the themes of nature, environment, science and technology. Provincie West-Vlaanderen / Vlaams Instituut voor de Zee, Brugge, België. 83pp

VLIZ contributions to publications for the public at large

Scheldekrant 6 – 2008

Polet H. et al. – 2008

Visserij in de Noordzee: samen sterk voor een zee vol vis(sers). Kustwerkgroep van Natuurpunt: Oostende, België. 13pp


Slabbinck B. et al. – 2008

Natuurgebieden in de Noordzee voor natuur én mensen. Kustwerkgroep van Natuurpunt: Oostende, België. 13 pp

Leaflets and other materials

- 2008 calender – photographs of the Flemish coast
- 2008 tide book
- Poster 'A Future for fisheries – toward effective strategies for sustainability'
- Leaflet on the Week of the Sea 2008
- Leaflet on Goede visdag 2008
- Leaflet WoRMS
- Leaflet on poster series Fauna and Flora Belgian coast and educational package 'classification'

Ikhebeenvraag.be popular for multidisciplinary science questions with young and old

Since its launch on 6 May 2008 this online information portal processed over 7000 questions, including questions on the coast and the sea. VLIZ is one of the 13 project partners who were involved in the development of the website and have taken care of the semi-automatic distribution of questions from the public at large to the experts since the very beginning.

Hebben
vissen
dorst?



www.ikhebeenvraag.be

Infodesk

Every year the VLIZ infodesk receives numerous **requests** for information, documents, contact information of persons involved in marine scientific research etc. A large part of the questions asked and their respective answers are registered and kept on file. In 2008 the VLIZ infodesk answered and registered a total of 245 questions, 37 of which from the press.

The most interesting questions and answers are subsequently stored in the **information portal 'Our Coast'** of the VLIZ website, so that they can be consulted freely by the public at large. At the end of 2008 a total of 646 questions and answers could be found online (556 in Dutch and 90 in English).

On 6 May 2008 a consortium of scientific institutions launched the website of the **'ik heb een vraag'** project (www.ikhebeenvraag.be). This online information portal offers the public at large the opportunity to ask multidisciplinary science questions. VLIZ gets the opportunity to assist in answering ocean-related questions through an automatic distribution system that is supported by each of the partners alternately.

In cooperation with the department Figures&Policy, considerable time and energy was spent in 2008 on producing 747 relevant **seastats** and 21 **information sheets**. Both are intended for the public at large and for policy makers (see p. 65). 19 of these information sheets deal with non-native species in the Belgian part of the North Sea and are offered through the VLIZ website (www.vliz.be/NL/Cijfers_Beleid/Niet_inheemse). In addition, a series of information sheets describing the life and work of historical marine scientists was started on the project website www.wetenschatten.be. There are currently two such sheets available.

VLIZ also became a partner of the **Sea On Screen** consortium in the course of 2008. In cooperation with the Dutch research institutions and associations EcoMare, NIOZ, IMARES Wageningen, NAM, NIOO and Stichting De Noordzee, information on the North Sea and on the Wadden Sea is made available to students and the public at large through the websites www.zeeinzicht.nl (in Dutch) and www.seaonscreen.org (in English). VLIZ also assists in the development of a new module which will specifically map the ecosystem of the river Scheldt and its estuary (incl. the Belgian coastal area). At present, almost 20% of the visitors to the site are from Belgium.

Educational activities

Educational research project 'PLANET OCEAN'



The Planet Ocean e-learning project was launched on 1 January 2008. Some 1000 students from the 4th to the 7th year of general, technical and professional secondary education participated in an exciting virtual sailing trip along the coasts of the North Atlantic Ocean, the shallow seas and the deep sea. The www.planeeetzee.org learning platform is entirely devoted to current research of Flemish and international marine scientists. The interactive website comprises 21 teaching modules and over 75 assignments to be carried out both inside and outside the classroom. To participate in the competition, classes had to keep a log of their virtual journey. The 2008 edition of the competition was won by the 6th year students of SIGO Gistel. Their prize was an unforgettable expedition on board the Zeeleeuw (7-12 April 2008 – images available on www.vliz.be/vmdcdata/photogallery/planeeetzee.php). The second edition of Planet Ocean started on 1 September 2008 and runs until 27 March 2009. Part of the website was translated into English to present the project to an English-speaking public (www.planetocean.eu).

Planet Ocean winners stand in the shoes of a marine scientist for a while.

The 6th year students of SIGO Gistel win the 2008 edition of the competition of the Planet Ocean educational project. Their prize was an unforgettable expedition on board the Zeeleeuw.



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

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

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

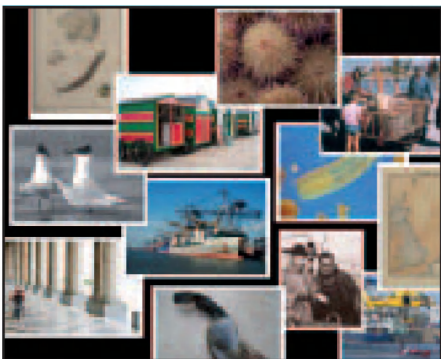
Schools are kept informed of what is going on in coastal and marine sciences through newsletters, participation in internet forums and all kinds of publicity channels (such as Klasse). In addition, the presence of VLIZ at education-oriented events offers an ideal opportunity to hear what the needs of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



Based upon an analysis of the different curricula VLIZ develops **digital teaching packages** on themes from various fields of study (geography, biology, chemistry, physics...). These PowerPoint presentations come with explanatory notes for teachers and suitable assignments. At the end of 2008 a total of 26 teaching packages were freely available for download from the educational VLIZ website. New elements in 2008 were lessons on the classification of the most common plant and animal species at the Belgian coast, salt extraction from the sea, the physics of diving and submarines, morphodynamic processes, the working of the sonar, life in the deep sea... A number of lessons on the sea were developed with the enthusiastic cooperation of teacher training students.



Making such information available in a modern and visually appealing form is essential to support education. Within this scope VLIZ is developing a series of **informative movies** on activities at and by the sea. In 2008 a number of productions were made with regard to the production of sea charts, the rescue of porpoises and various alternative fishing techniques in close cooperation with the marine scientific research community and authorities in Flanders. Since 2008 the film gallery has also included short informative video clips from third parties. At the end of 2008 some 25 VLIZ productions and 18 third-party productions were available online. The documentaries and video clips are put at the disposal of the public at large through the website and can be used freely provided the source is acknowledged correctly. Upon request VLIZ movies can be provided to educational organisations or institutions in high resolution. A number of these movies can be watched in visitor centres at the Belgian coast (Rederij Seastar, Visitor Centre De Nachtegaal and Seafront) or were requested by the media.



Marine and coastal images may be useful to teachers, pupils and students but also to researchers. On its website VLIZ offers various **photo galleries** with numerous images for non-commercial use. At the end of 2008, a total of 14,504 pictures could be found in the 'Film & Pictures' media gallery (overview on <http://images.vliz.be>). The gallery features pictures on the activities at the Flemish coast, marine research, Belgian fisheries, pictures and stamps with marine animals and plants...



For a diverse set of ecosystems – like the subtidal, the flood mark, marshes and tidal flats – the most prominent species are depicted photographically and named in four languages on an A1 poster. These publications are part of the **poster series** 'Fauna and flora of the Belgian coast' and will be extended in the future. Thanks to the high quality of the pictures (taken by nature photographer Misjel Decler) and the selection of the 30 most common or most remarkable forms of life we meet the demand of the public. These posters are the product of cooperation with research groups and institutions. The A1 posters can be collected at production price at VLIZ or be bought in some visitor centres along the Flemish coast. In 2008 the series was extended with the following posters: (1) Tidal flats and creeks of the Low Countries, (2) The flood mark at the Belgian coast, and (3) Soft substrates at the Belgian coast.

In 2008 the matching teaching package 'Classification' was produced for biology students in the 2nd cycle of secondary education. The students become acquainted with the principles of classification in 7 lessons. Within this scope they work with organisms belonging to the general fauna and flora of the Belgian part of the North Sea and the adjacent coastal area. The classification scheme they make helps them to understand the higher taxonomic levels, relationships, homologous and analogous structures etc.

With the guide '**Koers naar Zee**' (Off to the Sea) VLIZ, the Province of West Flanders and CPIE Flandre Maritime want to map learning methods and activities at the coast on the themes of nature, environment, science and technology. The excursion guide helps secondary education teachers to identify excursion possibilities and teaching materials and enhances the visibility of available educational initiatives. The excursion guide can also be consulted online at www.koersnaarzee.be.



VLIZ was responsible for the practical organisation of the **Urban design workshop** 'Landscaping the East Bank of Oostende - an international academic exercise'. A total of 50 Belgian, Spanish and Czech architecture students met at the InnovOcean site in Oostende between 10 and 15 November 2008. Together, they created various concepts for a landscape design in which they had to combine the rich cultural, maritime and natural heritage of the East Bank of Oostende. The workshop was organised in cooperation with Sint-Lucas (Ghent and Brussels), Escola Superior d'Arquitectura de la Universitat Internacional de Catalunya (ESARQ/UIC), Technická univerzita v Liberci (TU Liberec), AGSO, West8 Urban Design and Landscape Architecture, Bureau Bas Smets, Flemish Heritage Institute and Willy Versluys.



On 13 December 2008 all guides from the entire Belgian coast met for the first time at the **Seminar for Coastal Guides** so as to learn to know each other and to inform themselves about the activities of guides at the sea. After a short guided visit to the port of Oostende, where three guides told one integral story in spite of their own fields of expertise, some group discussions were held. Various subjects and bottlenecks faced by coastal guides nowadays were discussed in great detail, with attention to critical remarks and experience sharing. With this initiative we wanted to expand the usual frame of reference of the nature guide, city guide, port guide, museum guide etc. and explain how tourist guiding activities can be organised in a more integrated approach. The Seminar for Coastal Guides was an initiative of the Flanders Marine Institute (VLIZ) in cooperation with the Coastal Environmental Education Centre (NME), the Province of West Flanders, the Lange Nelle Guide Association, the City of Oostende and Horizon Educatief and was supported by the Flemish Government within the scope of the Science Information and Innovation action plan.





VLIZ set up a stand at various educational events for the public at large in 2008. The **Marine Day for Teachers** (19 March 2008) was organised within the scope of the Week of the Sea at the Duin en Zee centre in Oostende under the title of 'Aan zee VOELT het anders' (everything FEELS different by the seaside). The day was intended for teachers looking for inspiration for an educational programme by the sea. On Sunday 12 October Technopolis organised a **secondary education teachers' day** where an overview was given of all available shows, demos and workshops. A number of other actors from the science communication field, including VLIZ, showed what they have to offer in the educational field at the Teaching Materials Fair. VLIZ also set up a stand at the didactic fair at the **14th Science Teacher Congress** on 15 November 2008 in Ghent. In total, some 700 visitors visited the fair.



At the Flemish Science Fair 'Wetenschapsfeest' from 17 to 19 October 2008 in Nekkerhallen, Mechelen, school classes and families were able to discover for themselves that science can be surprising, amazing and innovative. At the Science Market VLIZ and some ten scientific groups active in marine and coastal sciences set up a 200 sq m large marine stand where visitors could enjoy interactive demonstrations on the theme 'goods and services of the sea'. In this manner approximately 21,000 visitors learned about mangrove forests, offshore fishing and aquaculture, wave power, alginics... and the most accomplished daredevils even tried a piece of 'jelly-fish toast'.

New Zeekrant launched!

This annual summer newspaper is intended to provide coastal tourists with all kinds of petty details on a wide range of marine-related subjects. The newspaper consists of contributions on marine pollution, offshore wind turbines, seawater desalination, sharks in the North Sea, dangerous rip currents, mussel farming and gulls, jellyfish and poisonous fish, the sea level rise, the colour and odour of seawater, 'Barisal Guns' and much more.

The newspaper is available for free at all visitor centres, libraries and tourist offices at the Belgian coast, but can also be browsed through www.zeekrant.be.





Marine L



Marine Library

library



© Decleer / Baai van Heist

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

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

Publications available through the Marine Library

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

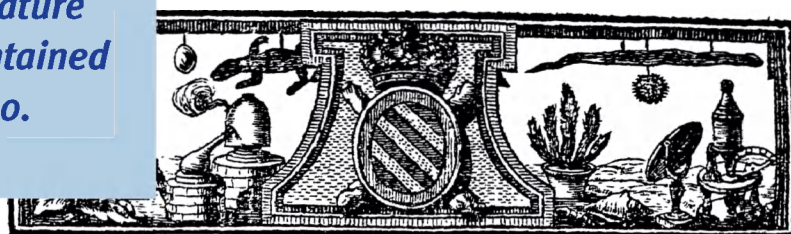
The core of the collection consists of recent work and historic publications of Flemish and Belgian marine researchers. The library also collects all documents and multimedia materials on the Southern Bight of the North Sea, the Belgian coastal area, the Flemish dune and polder belt and tidal rivers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

We do not only have publications on the sea. We also take care of the disclosure of all information on the authors, researchers and organisations publishing marine literature. This is done through the IMIS information system (also see p.87). Close cooperation with information and data managers ensures modern and efficient catalogue management, whereby all relevant marine information appears in the search results.

In 2008 the number of publications in the IMIS literature module increased by 9,327 units to a total of 119,958 publications, 24,169 of which are currently part of 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 (647 added in 2008). 9,424 publications dealt with (an aspect of) the Southern Bight of the North Sea while 14,745 titles were written by (a) Belgian author(s). The collection of Belgian marine theses currently comprises 1,218 titles. Of the nearly 120,000 references described in the IMIS literature module, 87% (104,023) are physically present in the Marine or we know in which other libraries the title is available. The number of references increased by 9,698 titles in the course of 2008.

Scans of older Belgian marine literature increase the number of records contained in the Open Marine Archive to 4,500.

The full text of old Belgian marine literature as well as numerous articles and reports on the River Scheldt (on behalf of Scheldemonitor) is actively scanned and made available through the Open Marine Archive (OMA). Here we see for example the front page of a publication by Abbé Mann from 1777 «Mémoire sur l'Histoire-Naturelle de la Mer du Nord, & sur la Pêche qui s'y fait», as published in the Mémoires de l'Académie impériale et royale de Bruxelles (II: 159-222).



M É M O I R E SUR L'HISTOIRE - NATURELLE

De la Mer du Nord , & sur la Pêche qui s'y fait.



SECTION PREMIERE.

VLIZ Collected Reprints is published for the first time on a CD-ROM.



As from volume 37 (2007), the VLIZ Collected Reprints will be published annually on a CD-ROM and distributed through the VLIZ Annual Report. In this manner the publications of Belgian marine researchers are compiled and exchanged with marine centres worldwide.

Service

The VLIZ Marine Library attempts to collect and make accessible as many publications as possible in the above-mentioned field. It is not possible to borrow materials, but all documents can be consulted in the library and possibly copied or scanned (b/w). The Marine Library also organises a **document delivery service**. 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 this service. In 2008 we received 498 document delivery requests (414 from members; 84 from external parties). This number decreases every year, probably because an increasing number of documents are available online through our Open Marine Archive (see next section) and through other similar initiatives all over the world. We were able to supply 479 references (or 96% of all requests): 295 (62%) from the Library's own collection and 184 from external sources (mainly via networks such as Euraslic and Iamslic (free of charge), Antilope/Impala and Subito Germany (at a charge)).

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

At the end of 2008, OMA comprised 4,500 titles. The number of downloads increased to 22,845 in 2008. This is done through the OMA website (www.vliz.be/NL/Zeebibliotheek/Bib_OMA) or through (possibly thematic) harvesters of open archives compatible with OMA (Google Scholar, AVANO, OAster, Aquatic Commons).

A total of 288 subscribers receive a weekly list of all publications added to the collection in the last week ([VLIZ Library Acquisitions List](#)).

VLIZ annually compiles the scientific articles of Flemish marine researchers in the [VLIZ Collected Reprints](#) and exchanges these articles with the publications of 158 marine centres worldwide. The Collected Reprints consolidates international contacts and improves the image of Flemish marine research. The VLIZ Collected Reprints is the continuation of the IZWO Collected Reprints (Vol. 1, 1970-vol. 28, 1998). Edition 37 (2007) was the first edition published on a CD instead of in the form of a book and was included in the 2007 Annual Report. The digital version of earlier editions (vol. 1- 36) is now also available through the Open Marine Archive.

Cooperation within projects and networks

The Marine Library is active in various fields, contributes to projects and joins various regional, national and international networks. The library is a member of the European (EURASLIC) and international (IAMSILIC) associations of marine libraries and cooperates with the IOC (Intergovernmental Oceanographic Commission) of UNESCO. It is also the Belgian input centre for all Belgian marine publications in the ASFA (Aquatic Science and Fisheries Abstracts) database of FAO. 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).

In its capacity as national input centre of [ASFA](#) (Aquatic Sciences and Fisheries Abstracts of FAO) the Marine Library also features web access to this database (1970-today). Visitors can freely consult this database at the library and print or forward search results. We furthermore offer VLIZ members the additional service of forwarding search results for specific ASFA search terms. VLIZ is responsible for entering all Belgian aquatic literature (peer-reviewed as well as grey publications) in this database and thus ensures worldwide distribution of the Belgian marine scientific output. In 2008 a total of 328 references were added to this database.

In 2008 the Marine Library worked on the [Wetenschatten](#) project. This project was developed with the support of the Province of West Flanders within the programme for permanent disclosure of Immaterial Cultural Heritage. Over the years the Belgian marine research has resulted in an impressive volume of publications and documentation. Most texts are relatively well known and widely available. However, the situation is different for the numerous illustrations in this literature (pictures, drawings, plans, maps etc). Hidden deep in books and reports, these illustrations threaten to be lost forever as they do not see the light any more. The project attempts to preserve and disclose this scientific coastal heritage through the website 'Wetenschatten, vier eeuwen kustonderzoek in beeld' (Scientific Treasures, four centuries of coastal research in the picture; www.wetenschatten.be).

All items are provided with general information and a short description of the contents. Users can browse the image archive by theme, author or time period, but it is also possible to look for specific visual material through the search interface. The website furthermore features information sheets on important Belgian marine scientific researchers. At the end of 2008 these included information sheets on the life and work of de Maere-Limnander and Meunier. Wetenschatten is especially aimed at a broad public interested in the history of Belgian coastal and marine research. At the end of 2008 the website featured 1097 images.

***The ‘Wetenschatten’
image archive discloses
illustrations from
historical Belgian marine
scientific writings.***



VLIZ wants to preserve and permanently disclose this scientific coastal heritage through the website www.wetenschatten.be in order to prevent the numerous valuable pictures, drawings, plans and maps hidden in marine books and reports from never seeing the light again.

*Wetenschatten,
vier eeuwen kustonderzoek in beeld*

Figures &



Figures & Policy



© Decler / Baai van Heist

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

- ❑ SEASTATS
- ❑ A CENTURY OF SEA FISHERIES
- ❑ NON-NATIVE SPECIES
- ❑ SCHELDEMONITOR

The provision of policy-relevant information is one of the main tasks of VLIZ. This information is provided at the request of the user or on the basis of current policy and research questions. When translating complex databases and time series into policy-relevant figures, the Figures&Policy division strives to build bridges between the scientist, the relevant policy level, specific target groups (e.g. nature guides) and/or the interested public. For both approaches the 'Figures&Policy' division works closely together with the network of Flemish marine scientists and relies on good internal cooperation with the VLIZ data centre, Marine Library and Infodesk.

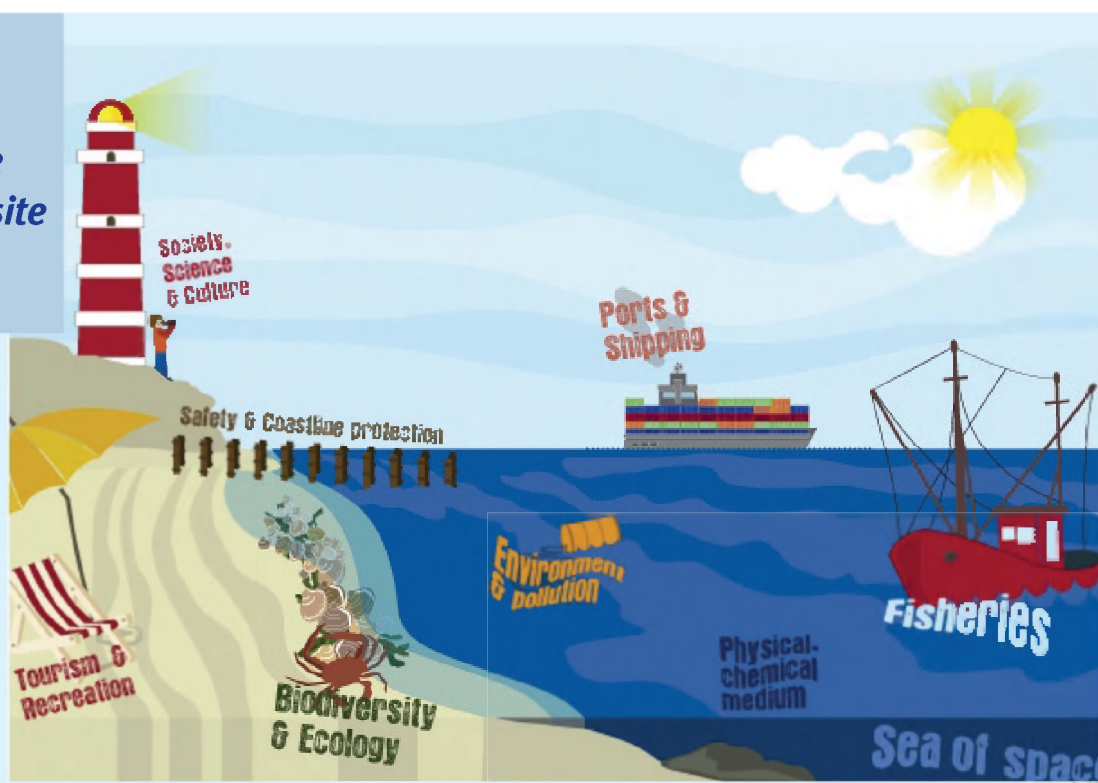
The primary geographic target areas of the Figures&Policy division are the Belgian part of the North Sea, the Flemish coastal area and adjoining estuaries. The division focuses on and creates added value by mapping the situation on a policy-relevant scale for Flanders/Belgium. If useful, the southern North Sea and the European waters provide a broader frame of reference.

Seastats

The Seastats section of the VLIZ website (www.vliz.be/cijfers_beleid/zeecijfers) offers objective statistics and facts about all kinds of sea-related topics. A reference to the source and a direct link to the online available document is provided for every stat. There is often also a link to a specific question and the corresponding answer. A useful instrument for people looking for scientifically reliable statistics for the introduction to a report or presentation. You can search for specific stats by clicking one of the nine sections on the interactive start page (see the eye-catcher on this page) and subsequently choosing one of the over 45 hierarchical subsections or by typing a keyword in the search box of the bilingual web application (Dutch/English). The Seastats website was launched at the end of 2007 with a total of 1,500 stats. At the end of 2008 the database featured 2,247 stats.

2,247 scientifically reliable marine and coastal stats available through the VLIZ website

Specific stats on marine and coastal themes can easily be found by clicking one of the nine sections on the interactive start page of the Seastats section and subsequently choosing one of the hierarchical subsections. It is also possible to find statistics in a more specific manner by typing a keyword in the search box of the bilingual web application (Dutch/English).



VLIZ Alien Species Consortium closely monitors introductions of alien organisms in the Belgian part of the North Sea and adjacent estuaries.

Niet-inheemse soorten van het Belgisch deel van de Noordzee en aanpalende estuaria

Japanse oester

De Japanse oester *Crassostrea gigas* geldt als 'exotisch', door veel mensen associëren zij een visserij, wordt in 1968 in België geïmporteerd als alternatief voor de Europese oester met de lokale platte oester. Men dacht oorspronkelijk dat deze soort zich hier niet zou kunnen verspreiden vanwege het koude klimaat. Maar dat was fout! De Japanse oester heeft het hier goed naar zijn en verspreidt zich op alle mogelijke harde ondergronden (dijken, strandhoofden, maaivelden, ...), waarbij ze in concurrentie staat met inheemse en andere lokale schelpdieren voor beschikbare ruimte en voedsel.

Wetenschappelijke naam:
Crassostrea gigas (Thunberg, 1794)

Oorspronkelijk verspreidingsgebied
Van oorsprong komt de Japanse oester *Crassostrea gigas* vandaan in zuidwest Azië en Japan [1, 2, 3]. Deze weekdiers kunnen zich met hun cilindrische schelp vasthechten op bijna elke harde ondergrond of substraat in zout water en estuariene gebieden. Men vindt ze echter ook in modderige of zandige zonen, waar ze vasthouden op pakketten van lege schelpen of op levende karkassen van een andere schelpsoort [2]. Na vertoep van tijd kan op deze manier een oesterbank ontstaan. De oestervolkering heeft substraat in gebieden waar voedsel enkel op het substraat aanwezig was.

Eerste waarneming in België
De komst van de Japanse oester *Crassostrea gigas* ging gepaard met een verspreiden door de zeegebieden van 1968-1969. Daarvoor was deze soort in 1960 ook nog eens de eerste keer in België geïmporteerd, voor de platte oester heel gewoon voor de kust. In 1968 werden daarom Japanse oesters geïmporteerd uit Nederland en uitgezet in de kust van Oostende. Deze Nederlandse oesters stonden echter rechtstreeks af van Canadese en Japanse oesters [2]. Men vermoedde toen dat natuurlijke reproductie niet mogelijk was door de te koude wintertemperaturen in onze wateren. Maar het bleef anders...

Verspreiding in België
Rechtstreeks van Japanse oesters komen de oestervolkeringen nogal vaak een stapje te stappen gebieden. De Japanse oester *Crassostrea gigas* heeft nu grote populaties in verschillende havens zoals bijvoorbeeld Nieuwpoort, Oostende, Zeebrugge en Blankenberge en is ook verspreid aanwezig op toeren in zee en op strandhoofden [3, 4, 5].

Vlaams Instituut voor de Zee

© VLIZ

A consortium of experts at various research institutes keeps the list of non-native marine and brackish water species along the Belgian coast and adjacent estuaries up to date.

Non-native species

The 'Non-native species of the Belgian part of the North Sea and adjacent estuaries' project is an example of the provision of policy-relevant information for Flanders/ Belgium. In this project VLIZ offers an updated list of non-native species identified in the Belgian marine and estuarine areas. Only the species which are known to have established populations or which are observed very frequently and in large numbers are included in the list. Sporadic vagrants are not included.

An information sheet is drawn up for each of the species in the list (in Dutch; downloadable as PDF). 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 Flemish / Belgian situation without losing sight of the international context. Correct taxonomic information is supplied through a link to the World Register of Marine Species (WoRMS; also see p. 92-93). If possible, pictures, distribution maps and relevant links to sources and other websites are provided as well.

This project would not have been possible without the input and continuous cooperation of experts and the support of VLIZ (Data Centre, Infodesk and Figures&Policy divisions). The 'VLIZ Alien Species Consortium' combines the knowledge, experience and insights of a broad group of scientists and institutions so as to put this information at the disposal of policy makers as soon, transparently and accurately as possible and to support sustainable management of the coast and the sea.

In 2008 the first information sheets for these non-native marine and coastal species were published on the VLIZ website. At the end of 2008 a total of 19 species had already received their own 'identity card' (see box on the right hand side).

A century of sea fisheries in Belgium

Despite its relatively poor contribution to the Belgian Gross National Product, it is impossible to imagine the coastal and marine landscape without the fisheries industry. Certainly in the past the fisheries industry provided significant employment at the coast and had a considerable impact on the sociocultural values in coastal communities. Historical fisheries statistics reflecting the socio-economic importance of fishing and the size of the catch in Belgium appear to have been published in a very scattered fashion in various statistic bulletins, annual reports, agricultural statistics and so on. Within this scope VLIZ started the project 'A century of sea fisheries in Belgium' in 2007, which attempts to inventory, standardise and integrate all available historical data and scientific information on sea fisheries in Belgium.

In a first stage the focus was on data with regard to the volumes and values of the landings of the different fish species (for every harbour and fishing ground). In the course of 2008 the available data were tracked, digitised, described, quality checked, standardised and integrated in a continuous time series from 1929 to today. Preparatory steps were made to redistribute all types of data in a user-friendly format. In this manner it will be possible to request the different types of time series for every commercial fish species through an interactive website, and information sheets will be published for every species. This application will be made available online early 2009 through the VLIZ website.

Recovery and revaluation of the historical context of Flemish offshore fishing is desirable in view of the documentation, preservation and restoration of the cultural heritage of the coastal community. The newly composed information also offers possibilities to improve the current models and predictions regarding fish stock levels (and hence the fisheries industry). At the same time, these data are also required to reconstruct the original ecological state of our seas and fish stocks (within shifting base line studies).

This clearly demonstrates the role of data management in the current scientific method as well as the importance of cooperation between scientific experts and professional data managers. This service was developed thanks to the cooperation of the Sea Fisheries service, the Institute for Agricultural and Fisheries research (ILVO - Fisheries), 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.

VLIZ Alien Species Consortium – 2008.

Non-native 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 2008:



Blue crab
Callinectes sapidus



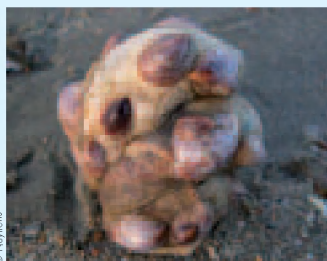
Pacific cupped oyster
Crassostrea gigas



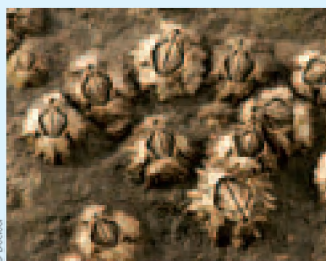
Sea walnut
Mnemiopsis leidyi



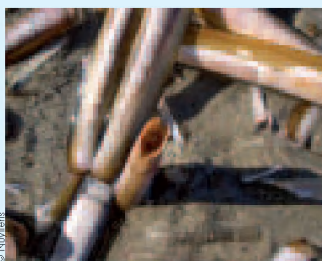
Wakame
Undaria pinnatifida



Slipper limpet
Crepidula fornicata



Australasian barnacle
Elminius modestus



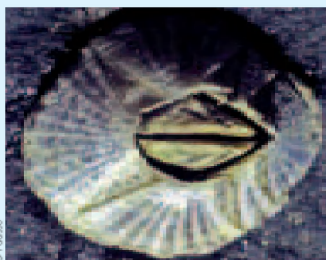
American jack knife clam
Ensis directus



Ponto-Capian mysid
Hemimysis anomala



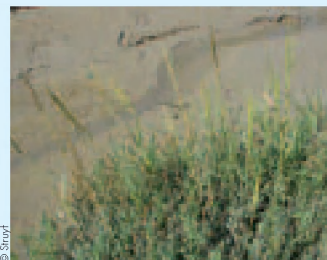
Dark false mussel
Mytilopsis leucophaeata



Striped barnacle
Balanus amphitrite



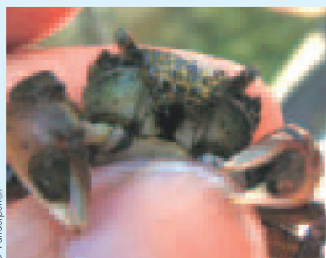
Softshell clam
Mya arenaria



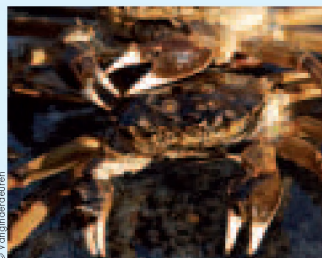
Common cord-grass
Spartina townsendii var. *anglica*



Japanese sargasso weed
Sargassum muticum



Hemigrapsus penicillatus



Chinese mitten crab
Eriocheir sinensis



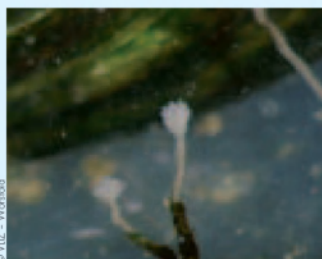
American piddock
Petricola pholadiformis



Northern quahog
Mercenaria mercenaria



Hemigrapsus sanguineus



Freshwater hydroid
Cordylophora caspia

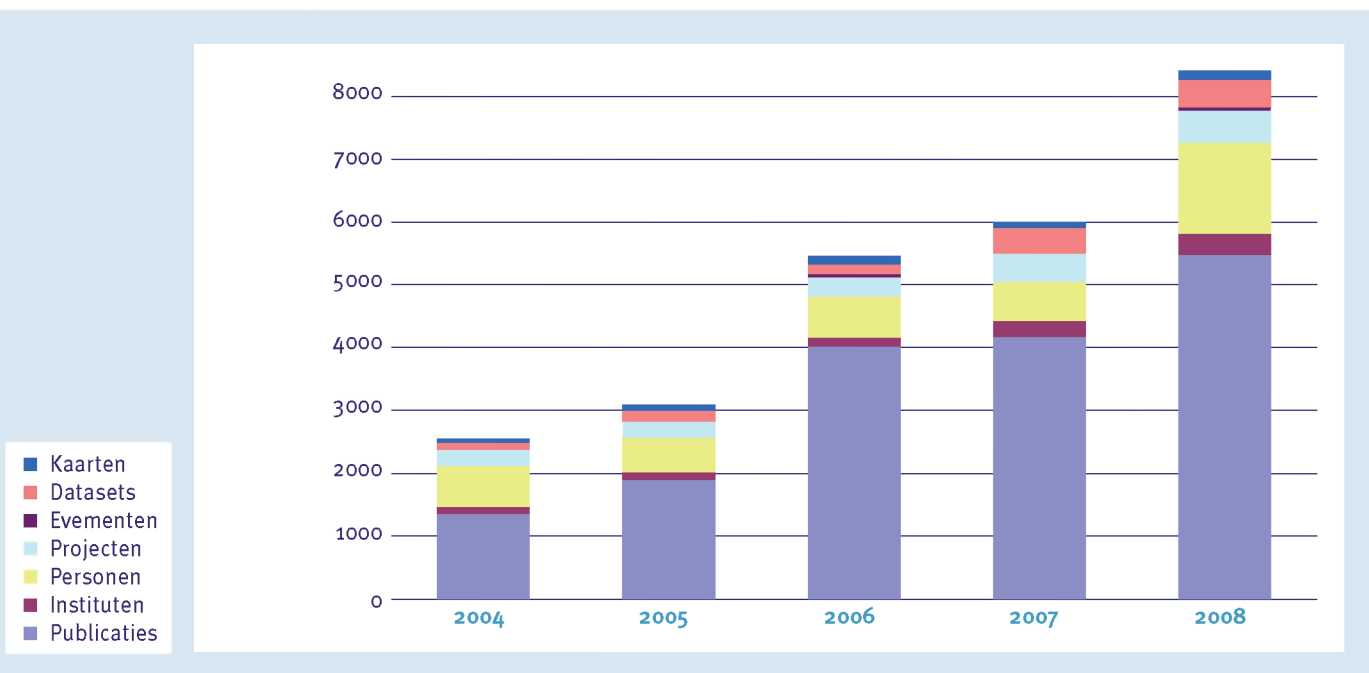
Policy support

It is the responsibility of the Figures&Policy division to monitor the European developments with regard to **integrated coastal zone management (ICZM)** and **maritime policy** and, if desired, to support these developments from the perspective of the marine sciences in cooperation with the research community. The Figures&Policy division recognises the Coordination Centre on Integrated Coastal Zone Management (CC-ICZM) as the main point of contact for the integration of plans and policies in the Belgian coastal area. VLIZ is a supporting partner of the CC-ICZM and participates in the meetings of the Executive Committee. In its capacity as a partner VLIZ provides technical and scientific support to the CC-ICZM within the scope of the fulfilment of its mission.

The **Coastal Barometer** comprises a set of sustainability indicators for the Belgian coastal area. Within this context VLIZ acts as data centre and develops the website. In 2007 the ICZM Coordination Centre prepared an update of the **Coastal Compass** and thoroughly reviewed the current set of 20 indicators. The 'Coastal Compass 2007' appeared early 2008; VLIZ was part of the editorial board and provided support during the data collection. In 2008 the Coastal Barometer website was revised and updated as well: www.vliz.be/projects/indicatoren.

Within the scope of ICZM the Figures&Policy division also supported the **SPINCAM** project for the development of sustainability indicators in the South East Pacific near the South American coasts (project of IOC/UNESCO and the member states of the Permanent Commission for the South Pacific CPPS, co-funded by the Flanders UNESCO Trust Funds) in 2008.

The **ScheldeMonitor** is a Flemish-Dutch knowledge and information system supporting research and monitoring of the Scheldt estuary. The ScheldeMonitor was created by order of the Maritime Access division of the Mobility and Public Affairs Department of the Flemish Government with support from the Dutch Ministry of Waterways and Public Works. At the end of 2008 this virtual information centre (www.scheldemonitor.org) represented the largest online accessible library on the River Scheldt and could be searched for 374 institutions, 1,311 persons, 593 projects, 60 events, 78 maps, 375 data sets and 5,710 publications.



Recovery and integration of historical time series offers a more objective view on the current ecological state of our seas and fish stocks.



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.

In addition, VLIZ initiated the update of the inventory of the [marine scientific landscape in Flanders and Belgium](#) in 2008. In a first stage the data of approximately 250 marine expertise institutions in Flanders contained in the IMIS database were updated. On the basis of this and other information an update will be provided of the study of the flow of funds within Belgian marine scientific research. Earlier data on this subject already date from 2001. This study will be concluded in the course of 2009.

Fac



ilities Facilities



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

- ❑ RESEARCH VESSEL 'ZEELEEUW'
- ❑ NEW RESEARCH VESSEL 'SIMON STEVIN'
- ❑ RIB ZEEKAT
- ❑ GREENHOUSES FOR DUNE RESEARCH
- ❑ EQUIPMENT
- ❑ OVERVIEW OF FLEMISH MARINE INFRASTRUCTURE
- ❑ MONITORING

More continuous cruises with RV Zeeleeuw in 2008

During the past calendar year the Zeeleeuw was used several times for multiple day cruises, resulting in a major increase of the number of sailing hours (1,327 hours). This enabled several research groups and projects to be served in an optimal manner (sampling at remote locations, sampling at night, continuous measurements etc.).



RV Zeeleeuw and RIB Zeekat

The oceanographic research vessel **Zeeleeuw** is used in the Belgian part of the North Sea, and in the adjacent coastal waters and in the Scheldt estuary. Fleet Division of the Internally Autonomous Agency for Maritime and Coastal Services (MDK) of the Flemish Government 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. Other vessels from the Flemish fleet are sometimes also used for marine scientific research. The scheduled time at sea of the ship (1,470 hours) is distributed among applications from Flemish, Belgian and international marine researchers. VLIZ also manages RIB **Zeekat**, a rigid inflatable boat that can be used from the Zeeleeuw but can also be operated autonomously.

In calendar year 2008 a total of 238 days at sea were spent on scientific research, 162 of which with the Zeeleeuw, 39 with the Zeekat and 37 with other ships of Fleet Division (see table). The Zeeleeuw spent a total of 1,327 hours at sea for research and educational purposes. This means that 90% of the time at sea made available by Fleet Division was used. RIB Zeekat was used 304 hours in 2008, especially for diving operations within the scope of research projects of Ghent University, the Flemish Heritage Institute and MUMM.

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

The Zeeleeuw and the Zeekat are generally used for research projects and for the monitoring of the coastal waters (see table). In 2008 we noticed a considerable increase in the number of hours spent on monitoring work on board the Zeeleeuw (527 hours or approximately 40% of the hours at sea). Apart from the monthly monitoring samplings organised by VLIZ on its own initiative (see below), the Zeeleeuw was also used for monitoring activities within the scope of the Water Framework Directive (MUMM and Ghent University), monitoring activities in view of the Thornton Bank wind farm concession (MUMM) and marine and coastal bird monitoring (INBO).

Research and educational projects with RV 'Zeeleeuw' in 2008

Research projects		# trips
VLIZ	Monitoring Belgian part of the North Sea	9
	Equipment trials	7
UGent – Mariene Biologie	WESTBANKS - Role of diversity, functionality and density of macrobenthos in the functioning of a seafloor	13
	Artificial reefs	21
UGent – Lab Protistologie	Monitoring Water Frame Directive	15
UGent – Lab Nematologie	Acoela and Nemertodermatida of the Belgian North Sea	3
UGent – RCMG	Equipment trials	1
	QUEST _{4D}	1
	Small scale sediment dynamics	5
KULeuven – Biodiversiteit en systematiek van Dieren	WESTBANKS - Role of diversity, functionality and density of macrobenthos in the functioning of a seafloor	4
NIOO-CEME	WESTBANKS - Role of diversity, functionality and density of macrobenthos in the functioning of a seafloor	4
UHasselt - Biodiversiteit, Fylogenie en Populatiestudies	The Rhabdocoela fauna of the Belgian North Sea	1
ULB - Lab Biologie Marine	MICROMET – Microbial diversity and metal fluxes in contaminated North Sea sediments	5
Brandwonden Centrum, Neder-Over-Heembeek	<i>Pseudomonas</i> sampling	2
INBO	Monitoring beach and sea birds Flanders	40
ILVO-Visserij	Pelagic Belgian part of the North Sea Equipment trials	1
BMM	BelColour 2	6
	Calibration Multi-beam images	5
	Monitoring hard substrates wind farm	1
	Monitoring Water Frame Directive	2
VIOE	Archeologic evaluation of ship wrecks	9

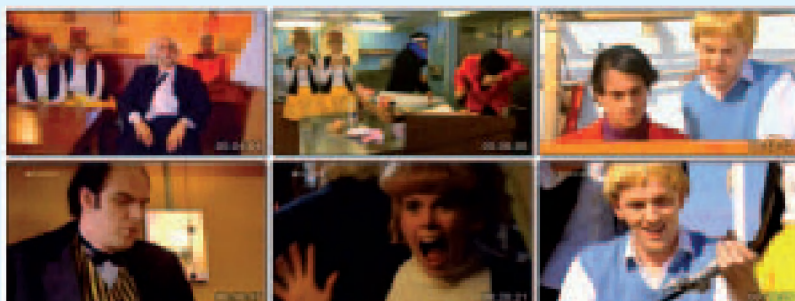
Educational projects	# trips
Week of the Sea	7
Planet Ocean	5
Hogere Zeevaartschool Antwerpen	1
UA – Ecofysiologie, Biochemie en toxicology	1
UHasselt – Biodiversiteit, Fylogenie en Populatiestudies	1
UGent – M.Sc. Marine Biodiversity and Conservation (EMBC)	1
UGent – M.Sc. Marine and Lacustrine Sciences (MareLac)	4
VUB – M.Sc. Ecological Marine Management Programme (EcoMaMa)	4
ULB – Ecologie des systèmes aquatiques (ESA)	1
VLIZ	2

RV Zeeleeuw also offers cruises for educational projects, such as ‘Planet Ocean’, the ‘Week of the Sea’ and field training for students (see table). In 2008 practically all Flemish universities made use of RV Zeeleeuw for educational cruises with students from their marine related Master’s programmes (179 hours or 14% of the total number of hours at sea). A work placement of one or several days on board the research vessel offers practical experience to MSc students from the University of Antwerp, Ghent University, Hasselt University, Vrije Universiteit Brussel, Université Libre de Bruxelles and the Antwerp Maritime Academy. In 2008 a total of 927 persons boarded the vessel (407 scientists, 520 students and other passengers).

During each trip a computer network on board RV Zeeleeuw registers the navigation data as well as meteorological and oceanographic (physicochemical) data. This data is kept and managed in the **MIDAS** database (Marine Information and Data Acquisition System). At the end of 2008 the database contained almost 5.5 million records. The system also helps to plan cruises and to register research activities on board the ship.

The Zeeleeuw used as a setting in the Flemish television programme ‘Neveneffecten’

One of the episodes of the second series of the screamingly funny television programme ‘Neveneffecten’ was shot on board the Zeeleeuw. The episode ‘Treasures of the Deep’ is about a team of scientists – who have remarkably much in common with characters from the Flemish comic book series Jommeke – that roams the seas in search of a treasure. The staff of Fleet Division and VLIZ were invited by the producers to attend the premiere screening of the episode and to meet the crew of production company Woestijnvis at Fort Napoleon on 17 November 2008.



More and more monitoring work in the Belgian part of the North Sea is carried out on board RV Zeeleeuw.

In 2008 about 40% of the time at sea of the Zeeleeuw was used for carrying out monitoring work in the Belgian coastal waters: in view of the Water Framework Directive, the Thornton Bank wind farm concession, bird monitoring and monthly monitoring on VLIZ's own initiative.



© VLIZ

New research vessel 'Simon Stevin'

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

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



© VLIZ

In 2008 an amount of 7 million Euros has already been reserved for the construction of the Simon Stevin from FFEU funds (Financing Fund for Debt Reduction and One-Off Investment Expenses) available for the Department of Economy, Science and Innovation (EWI). The Audit Office of the Flemish Government has already published a positive report on the financing plan. We now only have to wait for approval by the Flemish Government before the specifications are released to the public.

2008-2009 investment subsidy

For 2008 and 2009 VLIZ receives an additional investment subsidy from the Flemish Government Department of Economy, Science and Innovation (EWI). An annual amount of 1.1 million Euros can thus be used to acquire, renovate and maintain land-based infrastructure and to acquire and maintain research equipment to be used on the new research vessel. This investment subsidy (also called the 6th subsidy of VLIZ) was approved by the Flemish Government on 23 May 2008 as an additional addendum to the 2004-2009 management agreement.

At the end of 2007 minister Ceysens (EWI) announced the purchase of additional **land-based facilities** for VLIZ. These facilities are situated within walking distance of the offices at Wandelaarkaai and are located at the Halve Maan site on the east bank of the Port of Oostende. In 2008 all preparations were made and all negotiations were concluded for the purchase of the 4 large hangars and the adjacent house, and the concession of the surrounding grounds. The renovation and rearrangement of these buildings is scheduled for 2009. The **renovation** of the VLIZ head offices at Wandelaarkaai was prepared in 2008. The actual works – redesign of the entrance and a new library on the ground floor – are scheduled for the first half of 2009. The purchase of **new research** equipment for the Simon Stevin was prepared (consultation of the Scientific Committee and invitation and comparison of tenders) and will be carried out in the course of 2009.

Additional investment subsidy provides for purchase and renovation of land-based facilities, and new scientific equipment for RV Simon Stevin.

Thanks to an addendum to the management agreement VLIZ will be entitled to an additional budget of 1.1 million Euros in 2008 and 2009 for the purchase and renovation of land-based facilities as well as for the purchase of new research equipment for RV Simon Stevin.



© VLIZ - De Kieft

De Haan Greenhouses

The Nieuwmunster dunes in the municipality of Zuienkerke (near De Haan) accommodate a greenhouse complex that is 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 basic accommodation possibilities and an elementary laboratory. The Coastal Division of the Agency for Maritime and Coastal Services provides these greenhouses and adjacent grounds while VLIZ takes care of the coordination of the scientific programme and manages the research equipment. In 2008 these facilities were only used to a limited extent in the current research projects within which experiments are performed with regard to grazing of dune vegetation (UGent and INBO).

Equipment and storage

VLIZ manages a wide range of scientific equipment that can be used in marine research (see table). The VLIZ buildings also offer (temporary) storage space for samples and sampling materials. Within this scope VLIZ features a cold store used as 'core repository' for geologic deep-sea drill cores, several freezers for temporary storage of samples and a number of warehouses serving as a safe place for e.g. the ROV and RIB of the RCMG of Ghent University.

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

■ Physico-chemical parameters

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

■ Water sampling

- Niskin bottle
- GO-FLO
- Van Dorn bottle

■ Sediment sampling

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

■ Biological sampling

- Van Veen grab
- Reineck Box Corer
- Hamon grab
- Midi corer
- Beam trawl
- Ottertrawl
- Neuston net
- IKMT net
- WP2 plankton net

- Trawl plankton net
- Bongo net
- Plankton net
- Plankton pump
- Hyperbenthic sledge
- Passive Acoustic Monitoring (PAM) System

■ Miscellaneous

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

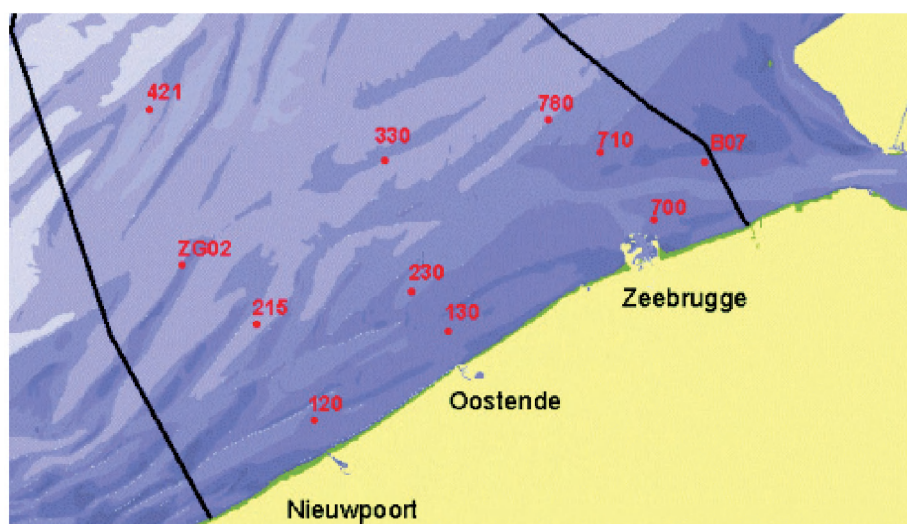
■ Storage space

- Ware houses
- Freezers
- Cold store - Core Repository

Monitoring in the Belgian part of the North Sea

In August 2002 VLIZ started monitoring the Belgian part of the North Sea on its own initiative. In this manner we hope to provide coastal research with the necessary long-term data and to collect a continuous time series which contributes to improved management of the Belgian coastal waters. Every month staff members of VLIZ sail along 10 fixed locations (see map) on board RV Zeeleeuw. Water samples are taken and CTD measurements are made at every location. In addition, seasonal 13 hourly measurements are taken at stations 120 and 330. VLIZ does not determine the values of the parameters (turbidity, nutrients and chlorophyll-a) itself. These are done by research groups at Flemish universities and research institutes. The fixed scheduling of these campaigns also provides room for other highly frequent observations in Belgian coastal waters.

This monthly monitoring was also continued in 2008 (see table). Katrien Töpke (MareLac, Protistology and Aquatic Ecology research Group, Ghent University, under the supervision of Prof Vyverman) currently elaborates samples for determining chlorophyll-a concentrations within the scope of her MSc thesis. In 2008 VLIZ made arrangements with the Flemish Environment Agency (VMM) on the determination of the concentration of nutrients and suspended matter in the water samples (to be consolidated in a cooperation agreement; see p. 27). The website www.vliz.be/monitoring provides further information on the project and shows the results so far.



VLIZ monitoring dates in 2008

29 January 2008	17 July 2008
22 February 2008	18 August 2008
-	26 September 2008
28 April 2008	20 October 2008
21 May 2008	21 November 2008
17 June 2008	15 December 2008



Data c



Data centre



Read more
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- ❑ KNOWLEDGE SYSTEM
- ❑ DATA ARCHIVE
- ❑ DATABASES
- ❑ REGISTERS
- ❑ NETWORKS
- ❑ WEBSITES







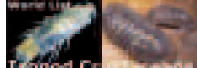


























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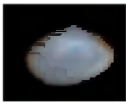











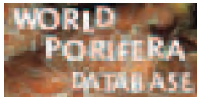
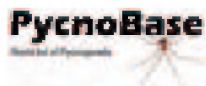




















The Flanders Marine Data and Information Centre (VMDC) currently employs 14 IT specialists and scientists. Within this scope the data centre has developed a knowledge system, a data archive, databases, registers and websites.



















- 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, conferences, maps and infrastructure is stored in a structured manner in this system. The system can be searched online.
- Scientific data are unique and have to be prevented from being lost. For this reason we developed the Marine Data Archive (MDA): a secure online **data archive** where scientists can archive and describe their data files and, if desired, share them with others.
- Integrated **databases** (IMERS, EUROBIS, Scheldemonitor...) are used to collect data of Belgian and international projects and measurement campaigns. After a thorough quality check and standardisation the data are made available online.
- **Registers** of marine species and place names support the quality check. The Aphia taxonomic register contains an overview and description 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 (see www.vliz.be/vmdcdata/wlist.php or table at the right).
- VMDC is also a member of a number of international data exchange **networks** (such as OBIS, GBIF, Seadatanet, IODE). It also provides IT services to international scientific initiatives (GLOSS, POGO, LifeWatch, PESI, ENCORA, MarBEF...).

Overview of all websites developed and hosted by VLIZ:

10^e Zeevogel conferentie  www.vliz.be/events/seabirdconference2009	African Marine Atlas  www.africanmarineatlas.net	Antartica expeditie  www.vliz.be/projects/ugent arctica	ArctEco  www.marbef.org/projects/arcteco	ASFA  www.vliz.be/events/asfa
BBDO  www.marbef.org/projects/bbdo	Het Belgica Genootschap  www.belgica-genootschap.be	BeNCoRe  www.bencore.be	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	Class@Desert  www.vliz.be/projects/classatdesert	Class@Oceans  www.vliz.be/projects/classatoceans
Class@Oceans II  www.vliz.be/projects/classatoceansII	COD  www.vliz.be/events/cod	Copepoden  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
Ecotox databank  www.vliz.be/vmdcdata/ecotox	Ed North  www.vliz.be/projects/endis/EDNorth.php	ENCORA  www.encora.eu	ENDIS-RISKS  www.vliz.be/projects/endis	ERMS  www.marbef.org/data/erms
ESPOL  imis.cti.espol.edu.ec	EURASLIC  www.euraslic.org	EurOBIS  www.marbef.org/data/eurobis	Expeditie Zeeleeuw  www.expeditiezeeleeuw.be	FAQ  www.vliz.be/vmdcdata/faq

Foodwebio	GBIRM	IMERS	IMIS	INRAM
				
www.marbef.org/projects/foodwebio	www.marbef.org/projects/gbirm	www.vliz.be/vmdcdata/imers	www.vliz.be/imis	www.vliz.be/projects/inram
IOC Tsunami	Isopoda	Koers naar zee	De kustatlas	LargeNet
				
www.ioc-tsunami.org	www.marinespecies.org/isopoda	www.koersnaarzee.be	www.kustatlas.be	www.marbef.org/projects/largenet
Lifewatch	Macrobel	MAFCONS	Mangroven	MANUELA
				
www.lifewatch.eu	www.vliz.be/vmdcdata/macrobel	www.mafcons.org	www.vliz.be/vmdcdata/mangroves	www.marbef.org/projects/manuela
MarBEF	Marbena	MARBIOL	Marble	MARBOUND
				
www.marbef.org	www.vliz.be/marbena	www.marinebiology.ugent.be	www.vliz.be/marble	www.vliz.be/vmdcdata/marbound
MarFish	Workshops rond Mariene Taxonomie	Maritieme archeologie	MarPace	MARPLAN
				
www.marbef.org/projects/marfish	www.marinespecies.org/workshop	www.maritieme-archeologie.be	www.marbef.org/projects/settlement	www.marbef.org/projects/marplan
MARS	MASDEA	MDA	Meetnet Vlaamse Banken	Meeuwen in de stad
				
www.marsnetwork.org	www.vliz.be/vmdcdata/masdea	mda.vliz.be	www.vliz.be/NL/Datacentrum/MVB_intro	www.meeuwenindestad.be
MIDAS	MIMAC	MRI e-conferentie	NARMS	NIOO data portaal
				
www.vliz.be/vmdcdata/midas	www.vliz.be/projects/mimac	www.vliz.be/projects/mri	www.vliz.be/vmdcdata/narms	data.nioo.knaw.nl

Niet-inheemse soorten	NSBP	NSBS	OBI	Ocean Data Portal
				
www.vliz.be/vmdcdata/mimac	www.vliz.be/projects/mri	www.vliz.be/vmdcdata/nsbs	www.vliz.be/events/obi	ezedm.vliz.be
Ocean-Ukraine	Olieslachtoffers winter 2003	OMA	OMES	Ophiuroidea
				
www.vliz.be/projects/ocean-ukraine	www.vliz.be/olieslachtoffers	www.vliz.be/oma	www.vliz.be/projects/omes	www.marinespecies.org/ophiuroidea
PESI	Phoronida	Planeet Zee	Porifera	Pycnabase
				
www.eu-nomen.eu/pesi	www.marinespecies.org/phoronida	www.planeetzee.org	www.marinespecies.org/porifera	www.marinespecies.org/pycnabase
QUEST4D	RAMA	RAMS	Rhabditophora	Rosemeb
				
www.vliz.be/projects/quest4D	www.vliz.be/projects/rama	www.scarmarbin.be/rams.php?p=search	www.marinespecies.org/rhabditophora	www.marbef.org/projects/rosemeb
SAIL	Sailcoast	SCAR-MarBIN	ScheldeMonitor	Sea Level Station Monitoring Facility
				
www.vliz.be/projects/sail	www.sailcoast.eu	www.scarmarbin.be	www.scheldemonitor.org	www.vliz.be/gauges
SMEBD	Spuikom website	STARDUST	STARDUST 2	SWG
				
www.smebd.eu	www.vliz.be/spuikom	www.vliz.be/projects/stardust	www.vliz.be/projects/stardust2	www.strandwerkgroep.be
TISBE	Ter zee of niet ter zee	Trophos	Tsunami Sea Level Station Monitoring Facility	URMO
				
www.vliz.be/vmdcdata/tisbe	www.vliz.be/marcol	www.vliz.be/projects/trophos	www.vliz.be/vmdcdata/iode	www.marinespecies.org/urmo

VLIMAR  www.vliz.be/vmdcdata/vlimar	VLIZ  www.vliz.be	VLIZ Educatieve pagina's  www.vliz.be/educatie	VLIZ Zeebibliotheek  www.vliz.be/NL/Zeebibliotheek	VLIZ photo gallery  www.vliz.be/vmdcdata/photogallery
VOC  www.vogelopvangcentrum.be	Waterbouwkundig Laboratorium  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	Wrakkensite  www.wrecksite.eu	Zandsuppletie  www.vliz.be/projects/beachsup	Zeecijfers  www.vliz.be/cijfers_beleid/zeecijfers
Zeekrant  www.zeekrant.be	Zeeleeuw monitoring cruises  www.vliz.be/monitoring	Zeesterren  www.marinespecies.org/asteroidea		

Data systems

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

The **IMIS** information system ('Integrated Marine Information System') provides a most detailed picture of the Flemish marine scientific landscape. Information on persons as well as on institutions, literature, projects, events, data sets, maps and infrastructure is structured in linked modules. IMIS is also used for international (project) sites. Within this scope the system contains Dutch (ScheldeMonitor), European (ENCORA and MarBEF) and global (WoRMS) marine information.

In the course of 2008 the number of documented data sets from various marine research disciplines within an international context increased to 1,208. Over 500 of these data sets can be requested through the VLIZ. The IMIS knowledge system also contains the description of 17,026 persons, 7,368 institutes, 2,196 projects, 119,958 publications, 795 conferences, 919 maps and 46 research devices and infrastructures.

VLIZ joined the Open Archives Initiative (OAI) in 2007 and launched the **Open Marine Archive** (OMA) to make the Belgian marine scientific output available online. OMA was linked to the IMIS Publications module. In the course of 2008 the number of references available in OMA increased by about 50%: from 3,000 in 2007 to slightly over 4,500 at the end of 2008.

Measurement data of sampling campaigns carried out within different Belgian projects are integrated in the **IMERS** (Integrated Marine Environmental Readings and Samples) data system. IMERS is also the instrument used to provide data to the IDOD database of the MUMM (with regard to the quality of the marine environment) as contractually defined by the Belgian Federal Science Policy Office for North Sea projects financed by the latter. In 2008 the data of four projects were added to IMERS. In the case of two projects – Westbanks and INRAM (see below) – it concerned a first data transfer resulting in a total increase of more than 14,000 records. The data of the OMES and MACRODAT projects were further complemented with more than 130,000 records.

Marine research data can now be archived online at VLIZ!

The Marine Data Archive 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.



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The **Marine Data Archive**, or MDA in short, is an online system specifically designed to allow scientists, research groups and project partners to archive and describe their data files in an external archive. Each file archived in the MDA is stored together with the metadata describing the contents of the file. Access to the data files can be private, be shared by a specific group of people within an institute or project or be open to all registered system users. User rights are defined in an account-based registration procedure. The number of archived and disclosed data sets in the Marine Data Archive increased by the end of 2008 to 6,843, totalling 12 GB of data. The archive currently has 91 registered users from 60 institutes and has been used within the scope of 29 projects.

Aphia is a taxonomic list of marine species. It comprises several geographical registers as well as several world lists of taxonomic groups and the general world list of marine species. It was originally a local initiative for storing and distributing information on marine species in the Belgian part of the North Sea (Tisbe, see below). The system has in the mean time evolved into a world database (WoRMS, see below).

The **VLIMAR Gazetteer** is an online list of geographic names linked to geographic information on and maps of these locations. The purpose of the gazetteer is to promote more univocal use of various geographic marine terms (seas, banks, bays...) in marine research. Every geographic object in the database is defined by a place name, a place type, coordinates and its relation to other geographic objects. This relational structure allows searching within a hierarchical tree structure and grouping related geographic elements. It is possible to search each geographic object through a search interface or to browse the tree structure. There is also a geographic search interface that indicates the location of the geographic object on a map. The geographic distribution of the VLIMAR Gazetteer is global, with focus on the Belgian part of the North Sea, the Scheldt estuary and the Southern Bight of the North Sea.

In 2008 VLIMAR was complemented with 1,500 place names from the Black Sea region and some 600 place names for the Antarctic. In addition, some 1,500 place names were added within the scope of the cooperation agreement between VLIZ and the Algology division of Ghent University. These worldwide place names are linked to the places where the algae and seaweed specimens were found that are part of the collection of the Algology division. The information on the specimens themselves will be added to the world list of taxonomic names (WoRMS) in the course of 2009.

Developed in 2006, the Maritime Boundaries Geodatabase **MARBOUND** contains the maritime boundaries and exclusive economic zones (EEZs) of countries worldwide. The database also contains all digital information on treaties on these boundaries. Since maritime boundaries are a relatively new concept, a number of countries have not yet defined their boundaries. Further negotiations will be held in the future, which will result in new treaties. Users can contribute to the further development and optimisation of this database by keeping us up to date on new boundary developments through the forum. Within this scope, new EEZ versions were included in the database in November 2008. A very useful feature is that changes to the previous situation are documented. This second version of the MARBOUND database can be consulted free of charge at www.vliz.be/vmdccdata/marbound and is also made available as a Google Earth layer.

At the end of 2005 the data centre developed a **photo database** in which pictures can be stored and documented. At the end of 2008 this database contained over 16,000 images which can be shown and searched through all websites developed by VLIZ. The displayed photo galleries are website specific and are all subdivided into sub-galleries. Direct online input and description of new visual materials is possible. There are currently 54 photo galleries available on several websites. A remarkable acquisition in 2008 were the more than 2,100 stamps depicting marine species (www.vliz.be/projects/mariene_postzegels/photo_gallery.php).

Hundreds of marine stamps online

Stimulated by philatelist Georges Declercq, specialised in collecting stamps depicting (marine) animals and plants, the VLIZ launched a new photo gallery of stamps depicting marine and maritime themes. There are currently more than 2,100 stamps with marine organisms online, mainly fish, molluscs, arthropods, seabirds and marine mammals.

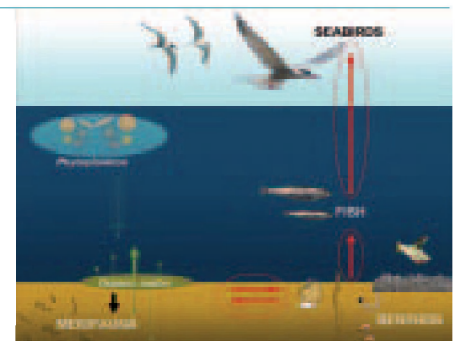


© Georges Declercq

Projects in 2008

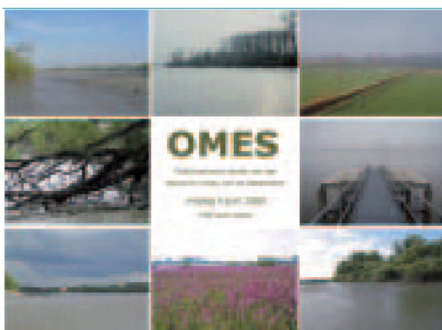
In 2008 VLIZ developed various websites, performed communicative tasks and collected and disclosed numerous data within the context of various projects. Some examples:

In 2009 the federally financed research project **Westbanks** 'Understanding benthic, pelagic and air-borne ecosystem interactions in shallow coastal seas' entered its second research phase (2009-2010). The Western Coastal Banks in the Belgian part of the North Sea are characterised by a series of shallow bank systems parallel to the coast which have high biological value. This continuation of the Trophos project subjects this area to an ecosystem study through experimental work and field analyses. VLIZ is responsible for the science communication of the project (project website www.vliz.be/projects/westbanks) and manages the generated data. The large number of data in the integrated database, which also includes data of earlier similar projects, was the basis material for a 'Westbanks Integrative Workshop' (organised at VLIZ, 29-31.10.08). In this workshop the Westbanks consortium explored the possibilities of the data and created an ecosystem vision on the basis of 4 hypotheses.





The federal research project **INRAM** 'Integrated Risk Assessment and Monitoring of micropollutants in the Belgian coastal zone' entered its second stage in January 2009. Contaminant concentrations are measured in water, in sediment and in the tissue of commercial flatfish, mussels, oysters and brown shrimps by means of new or improved techniques and experiments. The use of passive samplers (see picture) provides a new way of analysing micropollutants in water and of performing experimental research in the lab. On the basis of a risk analysis a first attempt is made to identify the relationship between the presence of a contaminant, the health of the ecosystem and the possible impact on man. VLIZ is involved in data management and in the development of the project website (www.vliz.be/projects/inram). Numerous data have in the mean time been integrated with the data of an earlier similar project called ENDIS-RISKS. Experimental data are archived and documented in the VLIZ Marine Data Archive (<http://mda.vliz.be>).



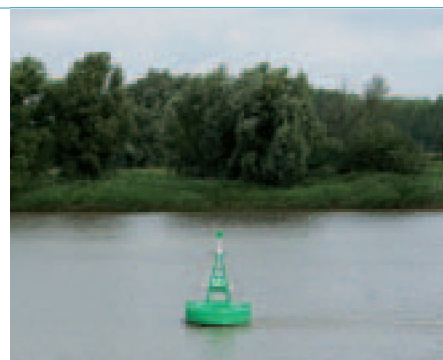
The **OMES** project (Research on the Environmental Effects of the Sigma plan) is already in its fourth stage. It has in the mean time evolved into the leading monitoring programme of the Belgian part of the Scheldt estuary. The VLIZ uprated and updated the integrated OMES database with the most recent data until 2008. The OMES website displays this data series and the monitoring activities (www.vliz.be/projects/omes). The huge quantity of data and time series stored in the database (924,324 records) gave rise to the organisation of the OMES-seminar 'De Schelde meten, de toekomst weten?' (Measuring the Scheldt, knowing the future?) on 6 June 2008 in cooperation with the University of Antwerp.

Measuring the Scheldt, knowing the future?

For ten years a monitoring of the Belgian part of the Scheldt estuary has been carried out within the scope of the OMES project (Research on the Environmental Effects of the Sigma plan). The huge quantity of available data gave rise to the organisation of an OMES seminar on 6 June 2008. At this event the results of 10 years of multidisciplinary research were presented to the press and to the interested public.



The long-term vision for the Scheldt estuary strives for joint management of and a joint policy for the estuary. The **ScheldeMonitor** (www.scheldemonitor.org) is the Flemish-Dutch knowledge platform for research and monitoring of the Scheldt estuary. It supports the increasing cross-border cooperation between Flanders and the Netherlands by means of the provided knowledge and information. VLIZ carries out this project by order of the Maritime Access Division of the Flemish Government Department of Mobility and Public Affairs. The ScheldeMonitor information system used to contain only information about publications, persons, institutions, projects, data set communication and the like. In 2008 this was complemented with measurement data. In the future the ScheldeMonitor data portal will also make available physical, chemical and biological data from cross-border monitoring and research in the Scheldt estuary carried out by Dutch and Flemish research groups and administrations. The data portal wants to provide users with data from various sources in an integrated manner.



VLIZ developed the **Sea Level Station Monitoring Facility** for the Global Sea Level Observing System (GLOSS) of the Intergovernmental Oceanographic Commission. 293 tide gauges from all the oceans of the world are read and checked in real time. The entire GLOSS network comprises 62 institutions that take care of the maintenance of the equipment and willingly provide their data and share them with the rest of the world (www.vliz.be/gauges).



The European **SeaDataNet** project is now halfway and the first version of the data portal has been launched (www.seadatanet.org). The VLIZ data centre provided data-set and project descriptions and some 700 CTD files. The third annual meeting took place in Athens back-to-back with the biennial international conference on marine data and information systems (IMDIS).



The five-year **MarBEF** (Marine Biodiversity and Ecosystem Functioning) project entered its final year in 2008. MarBEF is a Network of Excellence launched under the 6th framework programme of the European Commission. The network currently comprises 94 institutions and unites almost one thousand marine scientists in Europe. Within this project the data centre is responsible for data integration. Thanks to the cooperation and trust within this community over 100 scientists from 54 institutions (from 17 countries) made their data available. Formerly fragmented and scattered among the different institutions, these data sets are now completely documented, archived and integrated. With 221 data sets integrated into one data system and 4.4 million distribution data of 17,000 species from all European seas, the MarBEF consortium now features the world's largest database of macrobenthos and meiobenthos and of pelagic marine species. Due to the size of this integrated database (both with regard to time and space) the researchers gained better insights in the patterns and processes influencing marine biodiversity. In the mean time their finds have been published in dozens of publications in scientific journals. In 2008, for example, they contributed to a special issue on large benthic animals in the scientific magazine 'Marine Ecology Progress Series', which will be published in 2009. The role of the VLIZ data centre was to develop the database, to perform quality checks and to offer statistical analysis instruments.





Over the past five years MarBEF has drastically changed the European landscape. Over 150 events sponsored and organised by MarBEF have clearly resulted in increased interaction, cooperation, data exchange and eventually better science. After having supported MarBEF for five years, the European Commission now wants the network to become self-supporting. In June 2008 the managers of most European marine research institutes met in Brussels and decided to unite MarBEF, possibly with other EU networks, under the umbrella of the **MARS network** (European Network of Marine Research Institutes and Stations). The VLIZ data centre already managed the website of this network at that time (www.marsnetwork.org).



As from 1 May 2008 the VLIZ data centre has been one of the 40 partners within the Pan-European Species directories Infrastructure (**PESI**) (www.eu-nomen.eu/pesi). This new European project intends to develop a web portal of all European species, not only the marine ones. This list will be the basis upon which national governments will be able to map their own biodiversity. It will bring uniformity in Europe in the policy pertaining to the protection of and trade in species. The data centre coordinates the marine part of this project and manages the website.



Another example of a data and information system developed by VLIZ that contributes to international initiatives is **EurOBIS**. The European node of the international Ocean Biogeographic Information System (OBIS) is hosted and operated by the VLIZ data centre. OBIS is an online atlas with data on marine species distributions. With over 4 million records EurOBIS represents the largest data supplier within a pool of 14 regional nodes spread across the world. The major part of the MarBEF data is made available to the outside world through EurOBIS.



The European marine species list **ERMS** (European Register of Marine Species) was published ten years ago. Within the scope of MarBEF this list with 31,000 species was loaded into a database, the higher taxonomic classification was added and experts were given online access to keep the list up to date. The Belgian species list **Tisbe** (Taxonomic Information System for the Belgian part of the North Sea) is a collection within this database. It was the ERMS database which later evolved into the world list of marine species WoRMS (see next sections). A unique feature of the system is that taxonomic experts can personally check and adjust the contents. We also offer them the possibility to display their own data on a separate website through our database. This appears to be an inviting strategy: at the end of 2008 a total of 142 experts from 26 countries and 92 institutes had expressed their willingness to actively participate in the further development of the world list of marine species.



Several independent studies calculated that there are about 230,000 known marine species. However, it is estimated that at least 1 million species live in the sea, which means that 75% of all marine organisms have not yet been described. The need for an authoritative global register of all marine species is great, both from the perspective of science and from the perspective of oceanographic data management. The intention of the global species list **WoRMS** (World Register of Marine Species, www.marinespecies.org) is to contain all 230,000 known species by 2010.

Official launch of world register of marine organisms



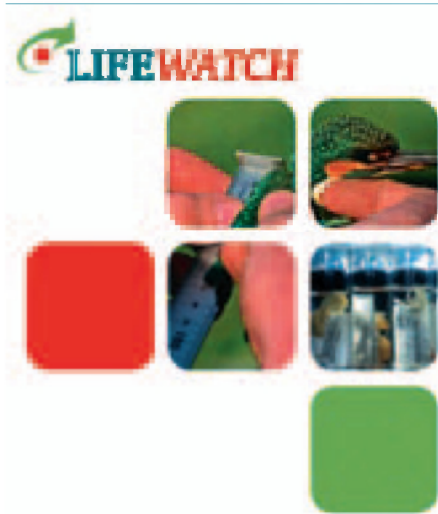
On 21 and 22 June 2008 the World Register of Marine Species (WoRMS) was officially launched in Oostende in the presence of 55 world experts from 17 countries. This world register currently contains 130,000 valid species names of marine animals and plants, which is slightly more than half of the estimated 230,000 known marine organisms. However, scientists suspect that in reality there are no less than 1 million marine species!

At the end of 2008 WoRMS contained almost a quarter of a million taxonomic names, 130,000 of which valid species names. In the course of 2008 seven new world lists were added, including those of Copepods, Isopods and Polychaetes. UNESCO supplied the list of Harmful Algal Blooms (HAB), which can now be consulted as a thematic list. Various international programmes, including the Census of Marine Life, the Global Biodiversity Information Facility, Encyclopedia of Life, Species 2000, Zoobank and UNESCO, have recognised this register as the world standard and use it formally. The website attracts almost 1,000 unique visitors a day, which makes it one of our most successful sites at the moment.

VLIZ organised the first meeting for WoRMS (World Register of Marine Species) experts in Oostende on 20-21 June. We had 55 participants from 17 countries. On the occasion of this workshop the Census of Marine Life issued a press release on the world register. 14 news agencies responded and translated it into 21 articles in 9 different languages. It appeared on 275 media websites (including BBC and CNN) in 27 countries. Scientific American had even put a nice slideshow with beautiful pictures online in honour of this world list.

The **Coastal & Marine Wiki** was developed within the scope of the European project European Network for Coastal Research or ENCORA (www.encora.eu/coastalwiki), and with over 10,000 unique visitors a month it was one of the top websites of 2008. More than 1,100 articles on marine sciences and coastal zone management have in the mean time been integrated in this online encyclopaedia. As from 2008, this medium is also used in various training courses on coastal management in Europe. Within the Coastal & Marine Wiki a portal on marine biodiversity has also been developed in consultation with the MarBEF network (Marine Biodiversity and Ecosystem Functioning): [www.encora.eu/coastalwiki/Portal:Marine Biodiversity](http://www.encora.eu/coastalwiki/Portal:Marine_Biodiversity).

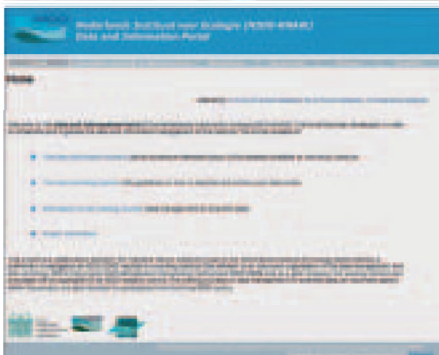




LifeWatch is a European initiative to develop a large-scale IT platform for biodiversity research. Web services will allow researchers to exchange species data and environmental variables and better mapping of the effects of climate change on our biodiversity. The preliminary stage (2008-2009), in which various European networks worked out the technical, administrative and financial plans, is followed by the development stage (2009-2012). It is the intention that the initially EU-funded project is kept operational after 2012 with the support of the European member states for at least 24 years. VLIZ is involved in LifeWatch through the marine biodiversity network MarBEF. We were subcontracted by the INBO to develop the website (www.lifewatch.eu) and to provide news and information from the research community on marine biodiversity.



VLIZ strives to bring good data management as close to the marine scientists as possible. Within this scope the VLIZ data centre organised two courses on 'General Scientific Data Management for Researchers' in 2008 at the request of the Netherlands Institute of Ecology (**NIOO-KNAW**). These 3-day courses for some forty young scientists took place at the IOC Project Office for IODE in Oostende (July and November 2008). The courses focused on the importance of archiving and documenting scientific data and explained the most commonly used data systems in great detail. In mutual consultation with the scientists the most suitable manner to manage their specific data was determined.



Apart from organising training courses at the request of NIOO-KNAW, VLIZ also developed an actual **data portal** for this institute. Priority was given to the development of an extensive catalogue of the data sets available at the Centre for Estuarine and Marine Ecology of the NIOO (NIOO-CEME). This portal makes use of IMIS and the Marine Data Archive (MDA) and allows users to archive their data online. At the end of 2008 the portal contained more than one hundred documented and archived data sets.



With an eye to improved management of the **Oostende Sluice Dock** VLIZ was asked to develop a water quality monitoring system for the sluice dock. The infrastructure and the purchase of the entire measurement system were taken care of by the Flemish Government (Maritime and Coastal Services, Coastal Division). VLIZ manages the collected data and distributes them through the sluice dock website. This website was redesigned in May 2008 (www.vliz.be/spuikom). Air and water temperature as well as wind direction can now be monitored practically live (delay of approximately 1 hour). In addition, webcam images of the Sluice Dock are available, as a result of which the weather conditions become 'visible'. Another new element is an interactive map displaying the different user areas on this salt lake with indication of what is allowed and what is not within specific zones. Collected data such as chlorophyll, salt content and nitrate can furthermore be represented periodically (on a daily, weekly or monthly basis) in diagrams.

A new design for the Sluice Dock website

The website of the Oostende Sluice Dock was thoroughly redesigned, whereby mainly the layout was changed and some technical novelties have been added for the benefit of the users of the salt lake. For example, webcam images of the Sluice Dock are kept on the home page. In addition, the website also offers data on the latest measured temperatures, wind speed and wind direction.



© Decleer

Project Office



UNESCO/IOC Project Office for IODE

for IODE



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

VLIZ has the special responsibility of taking care of the accommodation and support of the UNESCO/IOC Project Office for IODE (€ 76,000). In addition, VLIZ spends 500,000 every year on 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 disasters.

The Project Office features 40 PCs for training courses or visiting experts. On the ground floor the Project Office features a conference room with a capacity of ca. 150 persons. The upper floor features two training rooms, staff offices as well as a smaller meeting room (15 persons). The UNESCO/IOC Project Office for IODE hosts 105 dynamic websites across 12 servers (inclusive of virtual machines). At the end of 2008 the Project Office staff comprised 9 personnel members, 4 of which are on the VLIZ payroll (see VLIZ personnel list – p.21).

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

Oceanographic data and information management training courses

A total of 8 training courses with a total number of 150 trainees from 51 different countries were organised at the UNESCO/IOC Project Office for IODE in 2008 (see table). The total number of person days amounted to 708.

Trainings courses 2008	Region	Data	#	Level
IODE Training Course on Oceanographic Data Management for the Caribbean Marine Atlas	Caribbean	13-20.03	12	A
Introduction to Ocean Data Management for University Students (MARELAC - UGent and Ecomama)	Belgium & worldwide	17-18.03	22	B
ODIN-PI MIM: IODE Training Course on Marine Information Management towards the Ocean Data and Information Network for the Pacific Island region	Pacific	13-17.05	4	B
IODE Training Course on Mapserver for the Caribbean Marine Atlas	Caribbean	02-06.06	13	A
Third SeaDataNet Training Course	Europa	16-19.06	57	A
ONTOPRISE Training Course	Belgium	21-22.08	5	B
ODINECET Training Course on Marine Information Management	Eastern Europe	03-07.11	16	
ECOMAMA GIS Training Course	Worldwide	24.11 08.12 12.12	21	B

Niveau: B = basis; A = Advanced; S = Specialised

The participants came from the following countries: Albania, Algeria, Barbados, Belgium, Bulgaria, Cuba, Cyprus, Denmark, Dominica, Estonia, Fiji, Finland, France, Georgia, Guyana, Iceland, Ireland, Israel, Italy, Jamaica, Japan, Kenya, Latvia, Lebanon, Lithuania, Netherlands, New Caledonia, Norway, Malta, Morocco, Poland, the Russian Federation, the Republic of Trinidad and Tobago, Romania, Saint Lucia, Samoa, Slovenia, Solomon Islands, South Africa, Spain, Sweden, Tanzania, Tunisia, Turks and Caicos Islands, the United Kingdom, the United States and Vietnam.

Guest researchers

A total of 10 meetings and workshops were organised in Oostende in 2008 (see table). A total of 198 guest researchers from 27 different countries and 2 international organisations visited the office in Oostende. They stayed at the office for a period of one day to one year, resulting in a total number of person days of 687.

Meeting / workshop	data	#
Joint IPHAB/IODE Task Team on the development of the Harmful Algal Information System Design Workshop	08-09.01	7
First Session of the IODE/JCOMM Forum on Oceanographic Data Management and Exchange Standards	21-25.01	16
IODE Workshop on Coastal Atlas Requirements	21-22.02	10
DMCG-III: JCOMM Data Management Coordination Group, third session	26-28.03	13
Ad-hoc planning meeting for the JCOMM Pilot Project for WIGOS	29.03	8
ODINAFRICA-IV PLANNING WORKSHOP	02-05.06	8
SCOR/IODE Workshop on Data Publishing	17-18.06	13
Workshop on biodiversity informatics for marine species taxonomic experts - sponsored by MarBEF	20-21.06	55
GE-MIM-X: 10th Session of the IODE Group of Experts on Marine Information Management	03-06.11	7
IOC-OBIS workshop on collaboration between IOC and OBIS towards the long-term management, archival and accessibility of ocean biogeographic data co-sponsored jointly by the Sloan Foundation and IOC/IODE	24-26.11	11

In the spotlight



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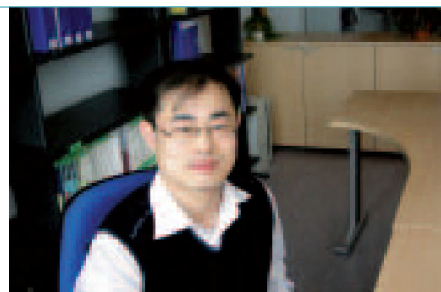
In early January of the year 2008 experts from IODE and IPHAB (IOC Intergovernmental Panel on Harmful Algal Blooms) met during the Joint IPHAB/IODE Task Team on the development of the Harmful Algal Information System Design Workshop in Oostende. During this workshop they worked on the development of an information system to prevent **toxic algal blooms**. This phenomenon occurs increasingly often due to eutrophication and threatens aquaculture and public health.



© IODE

Between 21 and 25 January 2008 a total of 16 experts in oceanographic data management stayed in Oostende during the First Session of the IODE/JCOMM Forum on Oceanographic Data Management and Exchange Standards. During this week arrangements were made to develop **common standards** for data exchange between American, European and other systems.

In 2008 various experts once again stayed at the UNESCO/IOC Project Office for IODE for shorter and longer periods of time within the scope of cooperation. **Li Zhanbin**, IT specialist at the National Marine Data and Information Service (NMDIS) in Tianjin (China), has joined us for the duration of one year.



© IODE

The Ocean Data and Information Network for the Pacific Islands Marine Resources Information System (**ODIN-PIMRIS**) is the youngest member of the ODIN family. This means that IODE is now also active in the region of the Pacific Ocean. In a first stage the office mainly wants to make marine publications from the area better accessible by supporting local marine libraries. Within this scope a first training course and workshop was organised for participants from Samoa, Fiji, New Caledonia and the Solomon Islands in 2008.



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A new target group for the training courses is the group of **MSc students** at Belgian universities. A basic training course on oceanographic data management was organised for students following the MSc programme in Ecological Marine Management (EcoMaMa) at Vrije Universiteit Brussel and the MSc programme in Marine and Lacustrine Sciences (MareLac) at Ghent University (17-18 March 2008). At the end of 2008 there was also a three-day basic training course on geographic information systems (GIS) for EcoMaMa students at VUB.



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The UNESCO/IOC Project Office for IODE maintains contacts with its alumni through the IODE **Mailing List Service** and the website **Ocean Teacher** (www.oceanteacher.org). In this manner ex-students are kept informed of the newest developments, training courses, workshops etc. The number of subscribers to this mailing list increased to 1,282 by the end of 2008.



Annexes

Financial statement
Performance & other indicators
Organisational chart
VLIZ contact information
VLIZ Collected Reprints 38 (2008)

FINANCIAL STATEMENT

BALANCE SHEET AND PROFIT AND LOSS ACCOUNT

BALANCE SHEET as per 31 DECEMBER 2008 (kEUR)

Assets	31/12/04	31/12/05	31/12/06	31/12/07	31/12/08
Intangible fixed assets	1.05	0.52	0.00	1.04	3.29
Tangible fixed assets	298.22	499.52	606.40	659.91	518.27
Financial fixed assets	16.76	12.39	13.70	1.31	1.31
Amounts receivable within one year	88.23	179.29	237.41	255.45	261.73
Investments	0.17	0.00	0.00	0.00	1,000.00
Liquid assets	301.62	412.03	411.82	268.44	169.77
Prepayments and deferred income	228.26	80.74	40.76	3.07	0.50
Total	934.32	1,184.50	1,310.09	1,189.22	1,954.87

Liabilities	31/12/04	31/12/05	31/12/06	31/12/07	31/12/08
Allocated funds	85.78	95.78	95.78	95.78	95.78
Surplus brought forward	381.02	666.19	901.84	735.18	1,647.57
Provisions for liabilities and charges	0.00	25.00	21.35	22.25	60.71
Liabilities due within one year	52.49	69.76	77.18	184.61	123.79
Prepayments and deferred income	415.03	327.78	213.94	151.40	27.02
Total	934.32	1,184.50	1,310.09	1,189.22	1,954.87

PROFIT AND LOSS ACCOUNT 2008 (kEUR)

Profits	31/12/04	31/12/05	31/12/06	31/12/07	31/12/08
Operating income	2,858.98	2,978.96	3,650.53	3,172.79	4,692.35
Financial income	0.21	0.52	2.52	4.80	2.91
Extraordinary income	0.00	0.00	0.00	0.00	18.45
Total	2,859.19	2,979.48	3,653.05	3,177.59	4,713.71

Losses	31/12/04	31/12/05	31/12/06	31/12/07	31/12/08
Remuneration and social security charges	1,073.67	1,273.51	1,540.74	1,712.93	2,008.63
Services and other goods	670.86	1,179.27	1,542.45	1,302.59	1,312.18
Provisions for liabilities and charges	0.00	25.00	-3.64	0.90	38.45
Depreciations	113.29	185.22	218.70	258.43	218.73
Financial charges	2.83	2.68	1.98	1.42	7.00
Other operating charges	980.39	17.61	117.17	67.98	215.80
Extraordinary charges	0.00	1.00	0.00	0.00	0.52
Total	2,841.04	2,684.31	3,417.40	3,344.25	3,801.31

Result	2004	2005	2006	2007	2008
Result of the financial year	18.16	295.17	235.65	-166.66	912.40
Transfer to allocated funds	10.00	10.00	0.00	0.00	0.00
Profit and loss reserve brought forward as per 31/12	381.02	666.19	901.84	735.18	1,647.57

Income from external financing	% of the 1st & 2nd subsidy	% of all subsidies (art. 5 §2 of the Management Agreement)
2005	69.80%	47.23% [1+2+3]
2006	71.51%	45.30% [1+2+3+4]
2007	68.33%	41.50% [1+2+3+4+5]
2008	78.05%	47.35% [1+2+3+4+5]

In the balance sheet and the profit-and-loss account all six subsidies are taken into account.

In 2008 no surplus of the allocated subsidy was brought forward as a reserve (art. 9 §1 of the Management Agreement).

In 2008 the income from external financing represented 78.05% of the fixed 1st + 2nd subsidy and 47.35% of the 1st + 2nd + 3th + 4th + 5th subsidy (art. 5 §2 of the Management Agreement). The 6th subsidy was not taken into account here.

**Budgetary deviations from the 2008 budget
(art. 9 §1 of the Management Agreement):**

In the course of 2008 an extra addendum was added to the Management Agreement. This additional (6th) subsidy of 1,100,000.00 EUR is used for the purchase and renovation of additional land-based facilities in the harbour of Oostende and the purchase of scientific equipment of the Simon Stevin.

PERFORMANCE & OTHER INDICATORS

VLIZ performance indicators overview table

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

Performance indicator	2004	2005	2006	2007	2008
P1 Number and quality of cooperation agreements concluded with institutional actors in the field of marine scientific research in Belgium and abroad	10	13	17	19	20
P2 Number of quality-checked records in the IMIS literature module	63,534	73,486	87,346	97,795	104,023
P3 Number of quality-checked records forwarded to the ASFA database	396	666	939	1,126	1,454
P4 Number of quality-checked records in the VLIZ databases	17,572,920	24,297,742	36,303,562	73,923,402	157,962,748
P5 Number and quality of informative publications for the public at large:					
· number of issues of 'De Grote Rede' (*)	3	3	2	3	3
· total number of pages of 'De Grote Rede' (*)	72	92	60	96	92
· number of subscribers to 'De Grote Rede'	2,193	2,386	2,892	3,585	4,505
· number of issues of 'VLIZINE' (*)	6	5	5	8	7
· total number of articles in 'VLIZINE' (*)	140	117	91	171	172
· number of subscribers to 'VLIZINE'	730	839	930	1,155	986
· number of other publications for the public at large made with the active cooperation of VLIZ (*)	5	3	10	7	10
· number of questions/answers added to the 'Our Coast' section of the VLIZ website	50	113	287	8	53
P6 Number of guest researchers using the 'IODE Project Office' expressed in terms of person days (*)	0	296	173	110	687 (\$)
P7 Actual number of sailing days spent on scientific research (*)	195	240	188	239	238
P8 Number of training activities organised within the scope of the additional assignment described in article 4, expressed in number of person days (*)	0	1,227	2,348	942	708 (\$)

(*): reported per calendar year

(\$): new method of calculation (more details on pages 114-115 en 117-118)

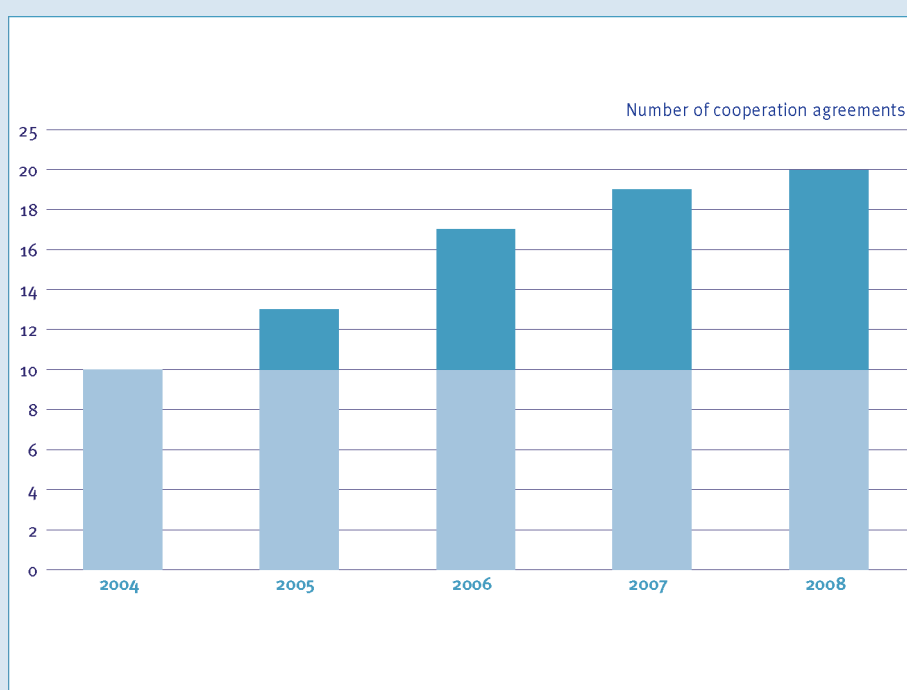
Performance indicators in more detail

The performance indicators used to assess the performance of VLIZ in 2008 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

Within the context of its role as a supporting research infrastructure for marine sciences VLIZ fulfils a special role. The cooperation with Belgian and foreign universities, research institutes and individual research groups is extended even further through the conclusion of cooperation agreements.

VLIZ also participates in numerous national and international networks and takes care of the image of Flemish marine and coastal research.



On 22 October 2008 VLIZ entered into a new national cooperation agreement with Université Libre de Bruxelles regarding the development and management of databases in connection with the biodiversity of mangrove ecosystems (Prof Dr F. Dahdouh-Guebas).

This means that VLIZ has concluded a total of 20 cooperation agreements so far. This number does not include the respective management agreements with the Department of Economy, Science and Innovation (2005-2009 and structural partner of the 'Science Information and Innovation' Action Plan) and the Province of West Flanders.

Of these 20 cooperation agreements, 14 relate to data exchange with marine research groups associated with universities or scientific institutions. These agreements represent 346 full-time researchers.

We have noticed an increase of the number of agreements by 10 since the entry into force of the new management agreement (2005-2009).

Overview of the national cooperation agreements (state of affairs at the end of 2008)

UNIVERSITIES

- Universiteit Gent, Department of Biology – biodiversity databases
 - Prof Dr M. Vincx – meiobenthos/macrobenthos/hyperbenthos/epibenthos
 - Prof Dr E. Coppejans – 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 – biodiversity/taxonomic databases
- Katholieke Universiteit Leuven
 - Prof Dr J. Berlamont & Prof Dr J. Monbaliu – hydrodynamics and sediment mechanics databases
 - Prof Dr F. Ollevier & Prof Dr F. Volckaert – marine and estuarine biology databases
- Vrije Universiteit Brussel, Prof Dr N. Koedam & Dr F. Dahdouh-Guebas – mangroves
- Université Libre de Bruxelles, prof. dr. F. Dahdouh-Guebas – mangroves

FLEMISH AND NATIONAL RESEARCH INSTITUTIONS

- Flemish Heritage Institute (VIOE) – maritime archaeology and nautical heritage
- Institute for Agricultural and Fisheries Research, Animal Science Unit, Fisheries Research Area (ILVO – Fisheries) – monitoring data and fisheries biological data
- Research Institute for Nature and Forest (INBO) – information exchange and data management with regard to marine and coastal research
- The MUMM department of the RBINS – cooperation with regard to Zeeleeuw and Belgica

FLEMISH AUTHORITIES

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

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

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

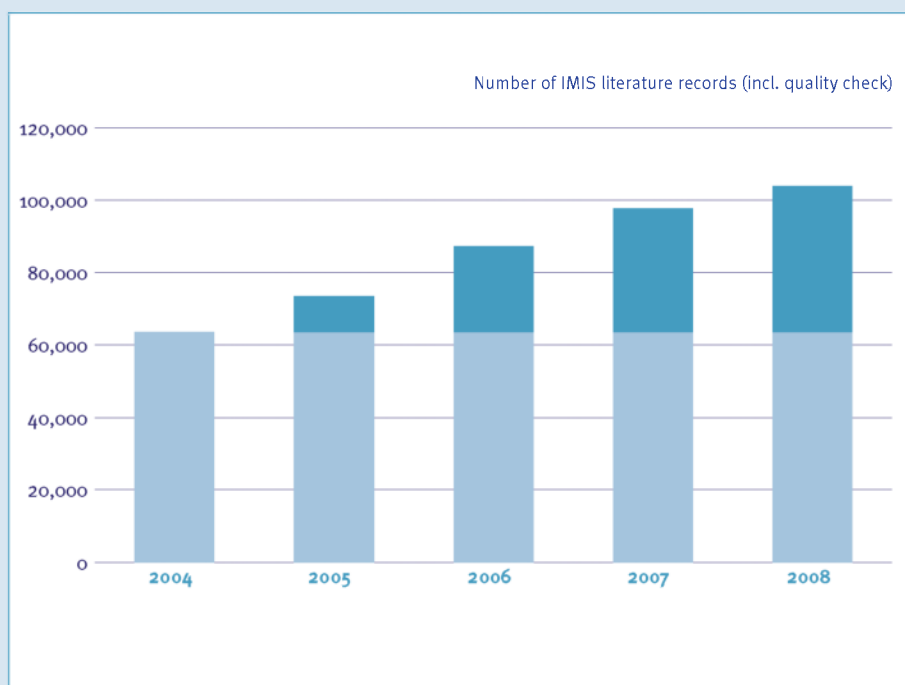
P2: Number of quality-checked records in the IMIS literature module

The IMIS integrated database is one of the databases of the VLIZ data centre. This Integrated Marine Data & Information System incorporates all marine and coastal expertise in Flanders/Belgium (and surroundings) and makes it freely accessible to internet users. 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 after a quality check. It is this number of quality-checked records in the IMIS literature module 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 2008 the IMIS literature module contained a total of 104,023 quality-checked records of marine or coastal publications. This is 6,228 more than at the end of 2007.

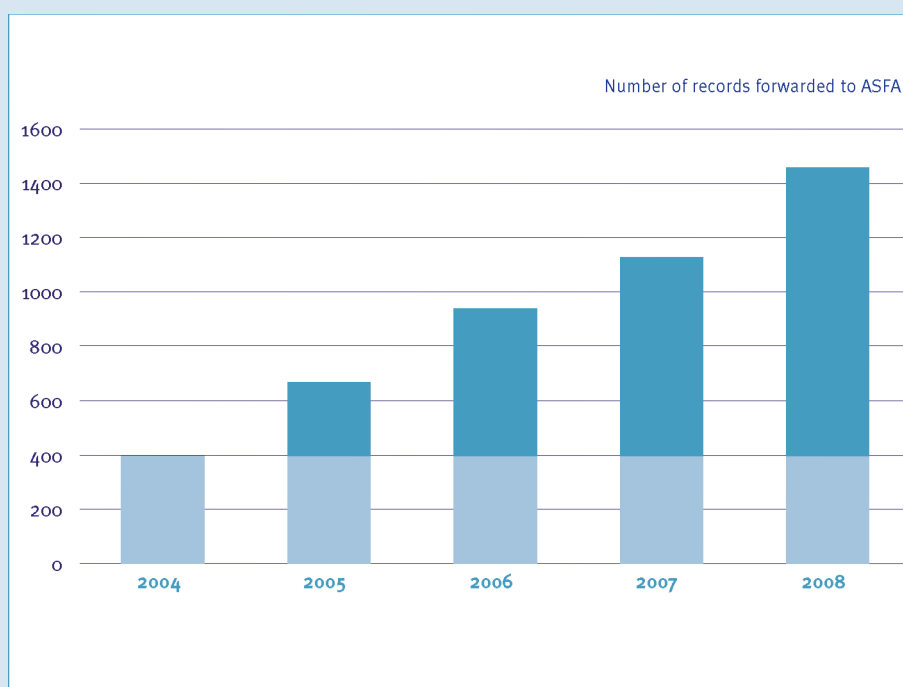
At the end of 2004 the total number of quality-checked literature records amounted to 65,534, which is an increase by 40,489 records since the beginning of the 2005-2009 management agreement.



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

By importing all Flemish/Belgian aquatic-related references in the ASFA database VLIZ promotes Flemish/Belgian marine research with an international scientific audience. As a matter of fact, 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 is able to load 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 an annual basis. In 2008 VLIZ added 328 Flemish/Belgian marine references to the database, which gives a total of 1,454 records so far.

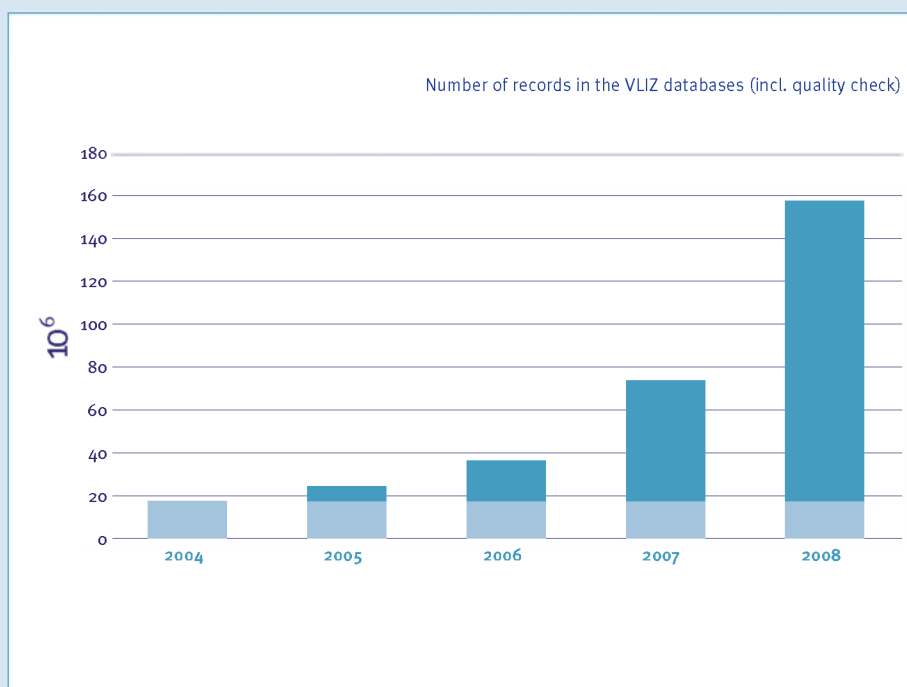
In 2004, the first year in which data were forwarded, VLIZ added 396 records. This means that 1,058 new records have been added since the start of the new management agreement (2005-2009).



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 2008 the total number of quality-checked unique records throughout all VLIZ databases amounted to 157,962,748. This is an increase by 214% compared to the number of records reported in the annual report of 2007. In 2004 the number of records in the databases amounted to 17,572,920. This means that the number of records in the databases has increased by a factor of 9 since the beginning of the second management agreement (2005-2009).



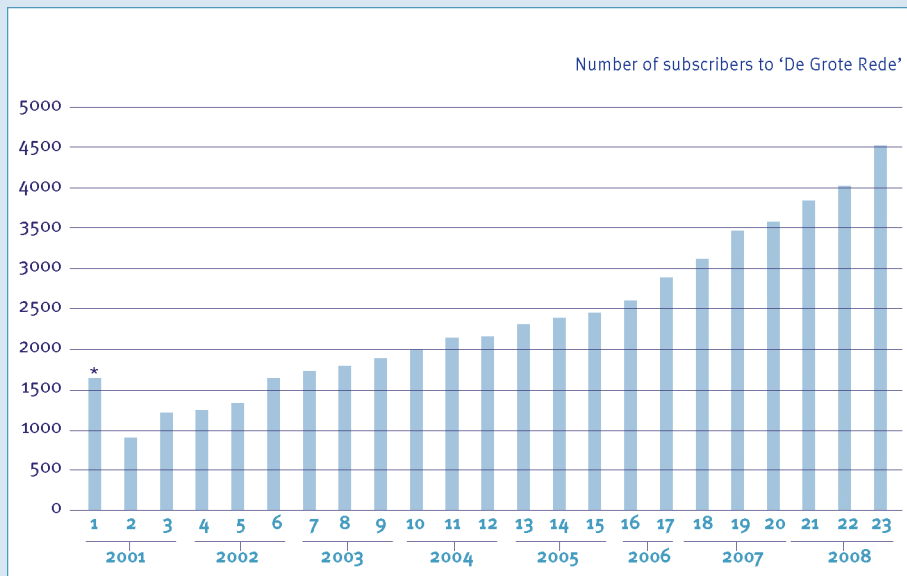
P5: Number and quality of informative publications for the public at large

One of the responsibilities of the Flanders Marine Institute is to popularise and distribute marine scientific information towards various target groups. Within this scope we annually organise various seminars, workshops, symposia and information sessions and have developed an Infodesk where everyone can ask marine and coast-related questions. The Infodesk also issues two regular publications ('De Grote Rede' and the digital newsletter 'VLIZINE') and contributes to other publications, a large number of which are also intended for the public at large. Since 2007 the institute has also put special focus on schools and other educational institutes by means of a Structural Partnership with the Flemish Government. Many 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
'De Grote Rede'	number of issues	3	3	2	3	3
	total number of pages	72	92	60	96	92
	total number of leading articles	9	9	6	9	9
	total number of short articles	11	14	16	15	15
	number of short features	0	0	10	15	15
	number of marine terms explained	4	6	4	6	6
	number of subscribers	2,139	2,386	2,892	3,585	4,505
'VLIZINE'	number of issues	6	5	5	8	7
	total number of articles	140	117	91	171	172
	number of subscribers	730	839	930	1,155	986
Other publications for the public at large with contributions from VLIZ	number of publications	5	3	10	7	10
Questions/answers regarding marine/coastal matters; disclosed via 'Our Coast' section on VLIZ website	Newly introduced	50	113	287	8	53
	total number online	185	298	585	593	646
Figures regarding marine/coastal matters disclosed via 'SeaStats' section on VLIZ website	total number online	0	0	0	1,500	2,247

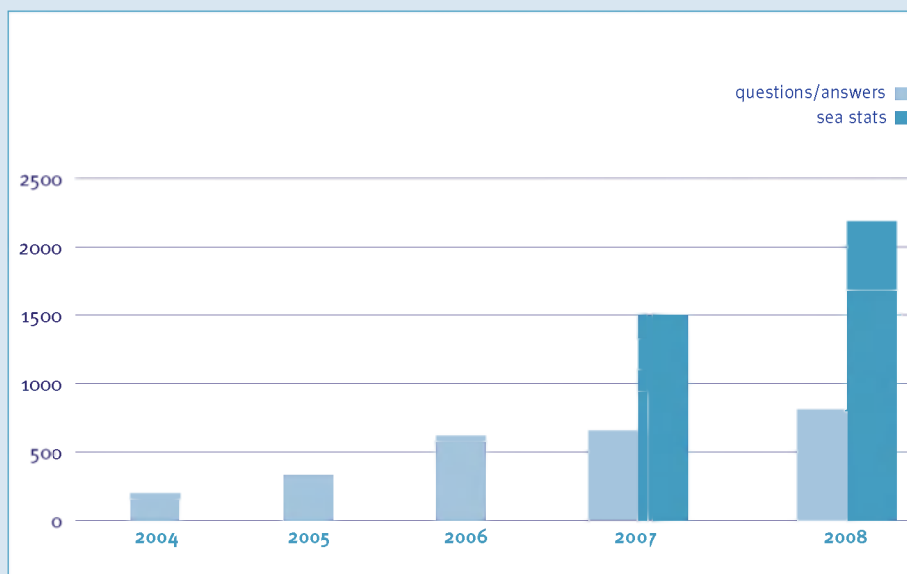
In 2008:

- VLIZ published 3 issues of 'De Grote Rede', comprising a total of 92 pages, 9 leading articles, 15 short features, 15 short articles and 6 marine terms. We reached a total of 4,505 subscribers;
- VLIZ published 7 issues of the digital newsletter 'VLIZINE', comprising a total of 172 articles; the newsletter was sent to 986 e-mail addresses.
- VLIZ actively contributed to 10 other publications for the public at large;
- VLIZ added 53 questions/answers to the 'Our Coast' section on the VLIZ website; this means that a total of 556 questions and answers in Dutch and 90 in English can now be found online;
- VLIZ added 747 stats (incl. source and link) on maritime and coastal affairs to the 'SeaStats' section on the VLIZ website.



The number of subscribers to the journal 'De Grote Rede' increases with every issue. In 2008 we welcomed 920 new subscribers. The number of subscribers has increased by 2,506 since the 2004-2009 management agreement took effect (*: the first issue was sent to 1639 addresses with an invitation to subscribe)

Due to the increasing number of subscriptions and the fact that the e-mail addresses of the VLIZINE subscribers changed often in the last number of years, the management of this mailing list was organised differently in 2008. The subscription and unsubscription process for the VLIZINE is now fully automated: sending an empty message to vlizine-subscribe@vliz.be or vlizine-unsubscribe@vliz.be respectively suffices. The result of this action is that a number of incorrect or double addresses were eliminated and that the VLIZINE was sent to 986 active e-mail addresses at the end of 2008.



In 2008 a total of 747 reliable figures and titbits of information were added to our 'SeaStats' database (www.vliz.be/cijfers_beleid/zeecijfers) and 53 questions/answers were added to the 'Our coast' section of the VLIZ website (www.vliz.be/vmdcdata/faq).

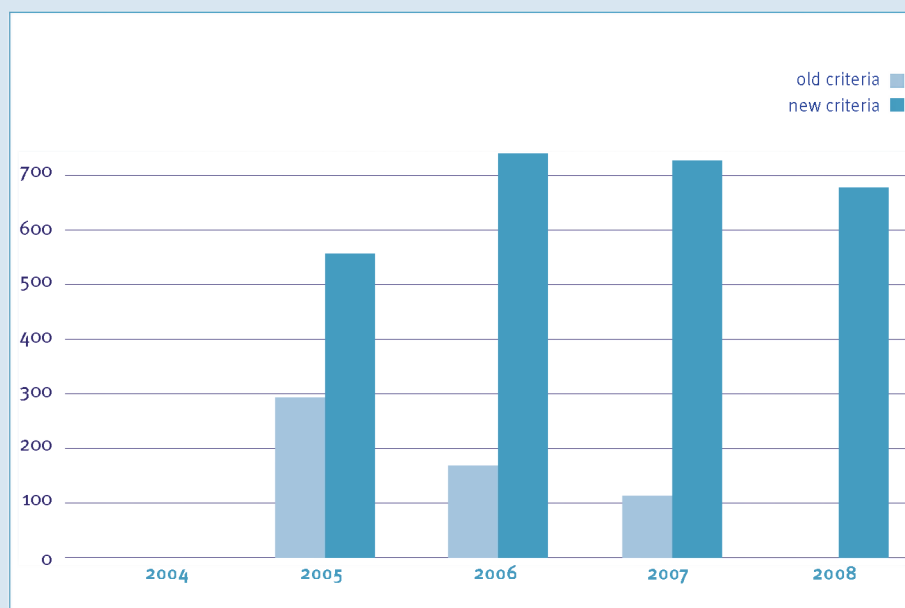
P6: Number of guest researchers using the UNESCO/IOC Project Office for IODE, expressed in terms of person days

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 (€ 76,000 a year) and has an annual budget of € 500,000 for the organisation of training courses in the field of tsunami early warning systems and other sea-related phenomena.

In 2008 a total of 198 guest researchers from 27 different countries and 2 international organisations visited the 'Project Office for IODE' in Oostende. Depending on the assignment, the visit took one day up to one year. The total number of person days spent by guest researchers amounted to 687.

Since its establishment in 2005 the IODE Office has increasingly been used as a meeting point and think tank for experts in oceanography and early warning systems (one of the objectives of the Project Office). This means that an increasing number of workshops and meetings are organised in Oostende (almost a doubling year on year). The number of experts increased from 23 in 2005 to 198 in 2008. The number of countries these experts come from increased from 6 in 2005 to 27 in 2008, which results from the fact that the IODE programme takes on an increasingly global character.

At the start of the Project Office these workshops had a rather educational character and as such were included in P8 (person days for training activities). They gradually became more specialised and it became essential to reformulate the criteria used to distinguish between P6 and P8, the number of person days for guest researchers and training activities respectively. The diagram below presents the figures of 2005 to 2007 according to the old and the new counting method for P6. For 2008, only the number calculated on the basis of the new counting criteria is reported.



A total of 10 meetings and workshops were organised in Oostende in 2008 (see table). In addition, several experts worked at the Project Office for short or longer periods.

Meeting / workshop	date	#
Joint IPHAB/IODE Task Team on the development of the Harmful Algal Information System Design Workshop	08-09.01	7
First Session of the IODE/JCOMM Forum on Oceanographic Data Management and Exchange Standards	21-25.01	16
IODE Workshop on Coastal Atlas Requirements	21-22.02	10
DMCG-III: JCOMM Data Management Coordination Group, third session	26-28.03	13
Ad-hoc planning meeting for the JCOMM Pilot Project for WIGOS	29.03	8
ODINAFRICA-IV PLANNING WORKSHOP	02-05.06	8
SCOR/IODE Workshop on Data Publishing	17-18.06	13
Workshop on biodiversity informatics for marine species taxonomic experts - sponsored by MarBEF	20-21.06	55
GE-MIM-X: 10th Session of the IODE Group of Experts on Marine Information Management	03-06.11	7
IOC-OBIS workshop on collaboration between IOC and OBIS towards the long-term management, archival and accessibility of ocean biogeographic data co-sponsored jointly by the Sloan Foundation and IOC/IODE	24-26.11	11

P7: Actual number of days at sea for scientific research

VLIZ concluded a cooperation agreement with Fleet Division, a division of the Internally Autonomous Agency for Maritime and Coastal Services (MDK), so as to be able to use the research vessel 'Zeeleeuw' (and, if necessary, other vessels of the Flemish fleet) for marine scientific research. In order to evaluate the performance of the scientific trips with marine scientists as organised by VLIZ the actual number of days at sea spent on scientific research was suggested as an indicator. 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 2008 a total of 238 days were spent at sea on scientific research, 162 of which with the Zeeleeuw, 39 with the Zeekat and 37 with other ships of Fleet Division. The Zeeleeuw sailed a total of 1,327 hours for research and educational purposes, while the RIB was deployed for a total of 304 hours, especially for diving assignments. In 2008 a total of 927 persons boarded one of the vessels (407 scientists, 520 students and other passengers).

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

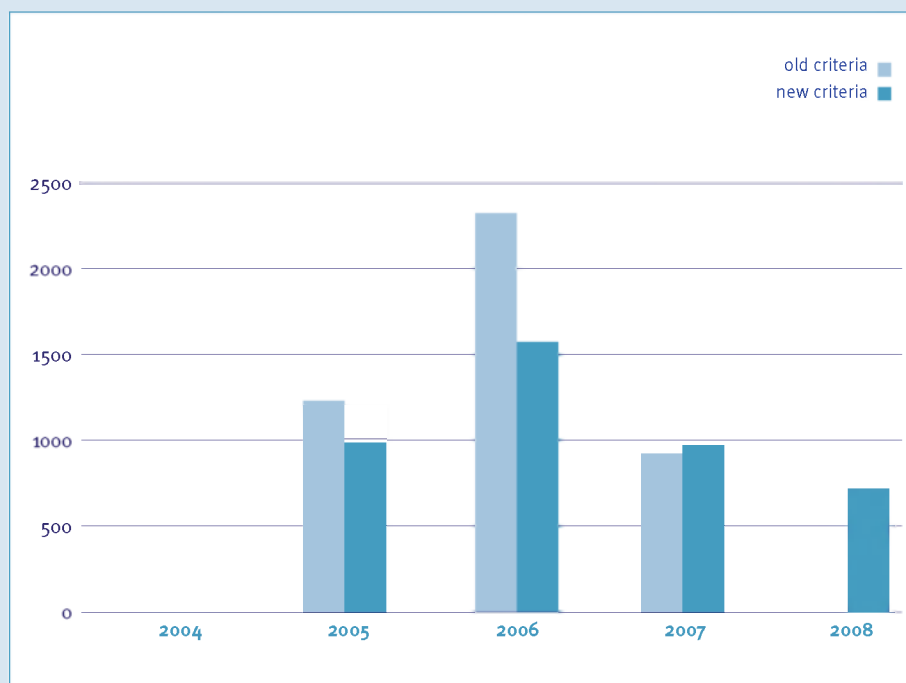


P8: Number of training activities organised within the scope of the additional assignment described in article 4, expressed in number of person days

The article mentioned above 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 Oostende expressed in number of person days, P8 specifically refers to the training courses organised at the office. The criteria to calculate indicator P8 were also revised (see explanation under P6 on page 114).

A total of 8 training courses with a total number of 150 trainees from 51 different countries were organised at the UNESCO/IOC Project Office for IODE in 2008. The total number of person days amounted to 708.

The number of training courses organised by the Project Office remains more or less stable: 8 to 10 training courses a year in the 2005-2008 period. The number of students also continues to fluctuate between 100 (in 2005) and 150 (in 2008). The number of training courses that can be organised in one year strongly depends on the availability of a relatively small pool of trainers. Efforts are being made to attract more teachers from data centres all over the world.



Although the number of courses and the number of students has remained relatively stable over the years, we nevertheless notice a strong decline in the number of person days spent on training courses at the Project Office. This is because the duration of the training courses has decreased in the course of time. Whereas the initial courses were mainly long-term beginners' courses for ODINAFRICA, ODINCARSA, ODINCINDIO and ODINECET, it now increasingly concerns shorter courses for advanced employees within the ODIN networks.

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

Trainings courses 2008	Region	Date	#	Level
IODE Training Course on Oceanographic Data Management for the Caribbean Marine Atlas	Caribbean	13-20.03	12	A
Introduction to Ocean Data Management for University Students (MARELAC - UGent and Ecomama)	Belgium & worldwide	17-18.03	22	B
ODIN-PI MIM: IODE Training Course on Marine Information Management towards the Ocean Data and Information Network for the Pacific Island region	Pacific	13-17.05	4	B
IODE Training Course on Mapserver for the Caribbean Marine Atlas	Caribbean	02-06.06	13	A
Third SeaDataNet Training Course	Europa	16-19.06	57	A
ONTOPRISE Training Course	Belgium	21-22.08	5	B
ODINECET Training Course on Marine Information Management	Eastern Europe	03-07.11	16	
ECOMAMA GIS Training Course	Worldwide	24.11 08.12 12.12	21	B

Niveau: B = basis; A = Advanced; S = Specialised

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	2007	2008
About VLIZ					
Turnover of VLIZ (EUR)		2,528,646	2,746,084	2,824,697	4,096,349
Turnover without basic subsidy (external financing; in EUR)		408,815	667,292	227,606	210,343
Financial result of VLIZ (EUR)		285,170	235,653	166,660	912,389
Personnel (FTE permanent & temporary)		28.75	29.38	29.27	*29.97
Number of association members		265	248	238	248
Number of projects carried out by VLIZ in cooperation with research groups		27	28	29	25
Info desk: communication & information					
Number of 'Special' and 'other' publications of VLIZ		12	16	17	**18
Number of questions asked/answered by e-mail/phone		125	170	209	245
Number of events organised		10	15	12	20
Number of participants in organised events		890	1117	852	2,537
Number of 'Special Publications' pages		1,465	953	337	96
Number of hits/visitors to the VLIZ website and ander websites hosted on the 'vliz.be' domain: total number of visits		***505,474	263,896	501,428	563,980
Number of hits/visitors to the VLIZ website and ander websites hosted on the 'vliz.be' domain: total number of pages consulted		2,131,950	2,371,833	3,258,496	3,423,188
Marine Library					
Number of exchange subscriptions with the VLIZ Collected Reprints (resulting in at least the same number of journal or series titles in the VLIZ library)	C	163	163	163	158
Number of new publications in the library (references)		9,952	11,446	11,390	8,813
Number of requested references in the library		815	598	683	****498
Number of titles offered online via the Open Marine Archive	C	524	2,221	2,800	4,500
Number of titles downloaded via the Open Marine Archive		-	12,487	10,598	22,845
Percentage of questions answered successfully		99	98	96	96
Facilities					
Number of researchers/students/passengers that made use of the Zeeleeuw		830	697	1,036	*****927
Number of references to VLIZ in scientific publications resulting from the use of the facilities	C	31	48	60	78
Number of records in the MIDAS database	C	3,506,515	4,037,139	4,773,200	5,487,262
Number of archived and disclosed datasets expressed in number of files					
Number of archived and disclosed datasets expressed in total file size (in Gb)	C	1,701	5,896	6,534	6,843
Number of records in biological databases (Aphia, Eurobis, Macrobel, NSBP and Antobis)	C	1.83	6.22	11.02	12.12
Number of records in the IMIS 'Publications' module	C	2,823,778	5,951,961	16,169,975	21,243,488
Number of records in the IMIS 'Datasets module	C	87,545	99,792	110,631	119,958
Number of records in the IMIS 'Institutes' module	C	500	714	1,044	1,208
Number of records in the IMIS 'Conferences' module	C	4,818	5,154	6,542	7,368
Number of records in the IMIS 'Persons' module	C	447	493	653	795
Number of records in the IMIS 'Projects' module	C	9,757	11,635	14,359	17,026
Number of records in the IMIS 'Maps module	C	1,266	1,376	1,906	2,196
Number of records in the IMIS 'Infrastructure' module	C	47	108	899	919
Aantal records in de module 'Infrastructuur' van IMIS	C	0	41	46	46

* = 16.83 permanent and 13.13 temporary FTE; 20.36 scientific and 9.60 administrative employees (work placements and student employees not included)

** including 1 'VLIZ Special Publications', 7 reports, 4 co-publications, 3 posters and contributions to 3 other publications

*** The current VLIZ website was launched on 20 March 2006. In 2005 different software was used to count the number of visitors and the results cannot be compared.

**** Out of 498 requests (414 from members, 84 from external persons), 479 references (96%) could be supplied; 295 (62%) from the Library's own collection, 184 from external sources (mainly via networks such as Eurasic and Iamslic (free of charge), Antelope/Impala and Subito - Germany (at a charge)).

***** 407 researchers + 520 students/passengers

C = cumulative

ORGANISATIONAL CHART

The Flanders Marine Institute (VLIZ) is an autonomous institute with the legal status of a non-profit organisation under Belgian law that receives an annual subsidy from the Flemish Community and from the Province of West-Flanders. Pursuant to the articles of association VLIZ installed a Board of Directors, a General Assembly and a Scientific Committee as executive bodies at the time of its establishment. The latter advises the Board of Directors on the scientific feasibility and desirability of decisions.

Board of Directors

Pursuant to the articles of association the Board of Directors is composed of 14 members (end 2008):

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

Eight members were nominated by the Flemish government:

- *Mr Colin Janssen*, professor, Universiteit Gent, vice-chairman
- *Ms Marie-Claire Van der Stichele-De Jaegere*, honorary member of the Provincial Executive, secretary
- *Mr Jean Berlamont*, full professor, Katolieke Universiteit Leuven
- *Mr Yves Goosens*, general manager of DAB Fleet division of MDK
- *Mr Jean Lanckneus*, marine geology consultant, Magelas NV
- *Ms Veerle Lories*, secretary general ad interim of the Department of Economy, Science and Innovation
- *Ms Ilse Hoet*, department manager of the Department of Mobility and Public Works
- *Ms Magda Vincx*, full professor, Universiteit Gent

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

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

The three other members are:

- *Mr André De Raes*, assistant manager of the Provincial Development Company 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 meetings:

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

General Assembly

The General Assembly is currently composed as follows (2008):

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

The eight voting members appointed by the Flemish Community are:

- Prof Dr *Patric Jacobs*, vice-chairman of VLIZ
- Prof Dr *Willy Baeyens*, Vrije Universiteit Brussel
- Prof Dr *Jean Berlamont*, Katolieke Universiteit Leuven
- Prof Dr Ernest Schockaert, Universiteit Hasselt
- Prof Dr *René Van Grieken*, Universiteit Antwerpen
- Prof Dr *Magda Vincx*, Universiteit Gent
- Dr *Veerle Lories*, Department of Economy, Science and Innovation
- Eng Jan Strubbe, honorary director-general of the Waterways and Marine Affairs Administration

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

- Mr Gunter Pertry, member of the Provincial Executive
- Mr *Bart Naeyaert*, member of the Provincial Executive
- Mr *Patrick Braet*, Provincial Treasurer
- Mr *Jan Denys*, 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

The Scientific Committee advises the Board of Directors on all scientific and research-supporting activities organised by VLIZ and supports VLIZ in the formulation of qualitative and scientifically sound advice.

The composition of the Scientific Committee reflects the inter-university and interdisciplinary character of VLIZ. Attention is also paid to good cooperation with the Flemish authorities and the federal government in this respect. The composition of the Scientific Committee at the end of 2008 is presented below.

The Flanders Marine Institute (VLIZ):

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

Flemish universities and scientific institutions:

Two delegates from Katholieke Universiteit Leuven (KULeuven)

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

Three delegates from Universiteit Gent (Ugent):

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

Two delegates from Universiteit Antwerpen (UA)

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

Three delegates from Vrije Universiteit Brussel (VUB):

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

One delegate from Universiteit Hasselt (UHasselt)

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

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

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

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

- *Kris Cooreman* substitute: *Daan Delbare*)

One delegate from the Flemish Heritage Institute (VIOE):

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

The Flemish government:

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

■ *Frank Mostaert*

One delegate from the Coastal Division of the Agency for Maritime and Coastal Services (MDK):

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

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

■ *Rudy Herman*

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

■ *Ruth Declerck*, International Environmental Policy Division (AIM) of the Environment, Nature & Energy Department (LNE) (substitute : *Els Martens*, Central Services division of the Nature and Forest Agency (ANB))

The federal government:

One delegate from the Federal Science Policy Office:

■ *David Cox*

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

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

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

VLIZ CONTACT INFORMATION

Flanders Marine Institute
VLIZ – InnovOcean site
Wandelaarkaai 7
8400 Oostende
Belgium

Tel.: +32 (0)59 34 21 30
Fax: +32 (0)59 34 21 31
E-mail: info@vliz.be
URL: <http://www.vliz.be>

COLOFON

This Annual Report 2008 of the Flanders Marine Institute (VLIZ) is presented for approval to the Board of Directors and the General Assembly on 29 April 2009.

Coordination and final editing

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

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VLIZ COLLECTED REPRINTS

Marine and coastal research in Flanders

Colophon

Vol. 38 (2008)

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

On the CD in this Annual Report 2008 one can find an overview of volume 38 (2008). The full-text of some papers is added as pdf on the CD, but of other publications the full-text can only be provided via the OMA website. Clicking on the link 'OMA' will lead you directly to the full version available in our Open Marine Archive.

Users of this CD with no direct internet access can request paper copies of these references by using the document delivery services of the VLIZ library. Publication-exchange partners receive the full text of all these and previous papers on simple request, for their own publication series. They are also entitled to a copy of all VLIZ-publications.

New exchange proposals are welcomed and should be directed to:

Dr. Jan Mees, director
Flanders Marine Institute (VLIZ)
Wandelaarkaai 7, B-8400 Oostende, Belgium
Tel. +32 (0)59 34 21 30
Email: info@vliz.be

For specific library services and document delivery requests, please contact the VLIZ library:

Email: library@vliz.be

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