

PROJECT TITLE:

Ecosystem Models as Support to Eutrophication
Management in the North Atlantic Ocean

EMoSEM

MAIN DATA

ERA-NET supporting the call: SEAS-ERA (EU FP7 ERA-NET)

Coordinator (name and organization): Geneviève Lacroix
RBINS, DO Nature

Partner Organizations: RBINS, ULB, IFREMER, UPMC, IMAR,
UHAM, DELTARES, CEFAS (collaborators)

Partner Countries: BE, FR, PT (GE, NL, UK not funded)

Funding by country: BELSPO (Belgium), ANR (France)

Start date: 01/01/2013 End date: 31/12/2014



PARTNERSHIP:

Public Organizations (by partner): 1

- **RBINS** – Royal Belgian Institute of Natural Sciences

Entreprises (by partner): 1

- **Actimar** (subcontract IFREMER)

Others (by partner): 4 [U: University, RI: Research Institute]

- **ULB** – Université Libre de Bruxelles [U]
- **IFREMER** – Institut Français de Recherche pour l'Exploitation de la MER [RI]
- **UPMC** – Université Pierre et Marie Curie [U]
- **IMAR** – Instituto do Mar [RI, U]

Number researchers (by partner): 22 [RBINS: 4, ULB: 2, IFREMER: 3, UPMC: 7, IMAR: 6]

Internationalization (% participation by country in persons): BE: 27 %, FR: 46 %, PT: 27 %

Internationalization (% participation by country in funds):

- Funded part: BE: 56 % (incl. PT subcontract), FR: 44 %
- % funded/total: BE: 64 %, FR: 36 %, PT: 50 %

Internationalization (% participation by country in objectives): BE: 22 %, FR: 43 %, PT: 35 %
(MM whole project)

BRIEF PROJECT DESCRIPTION

Develop and combine river-basin/ocean ecosystem models to link eutrophication nuisances in coastal areas to anthropogenic inputs, and trace back their sources up to the watersheds, as support to eutrophication management in the NEA.

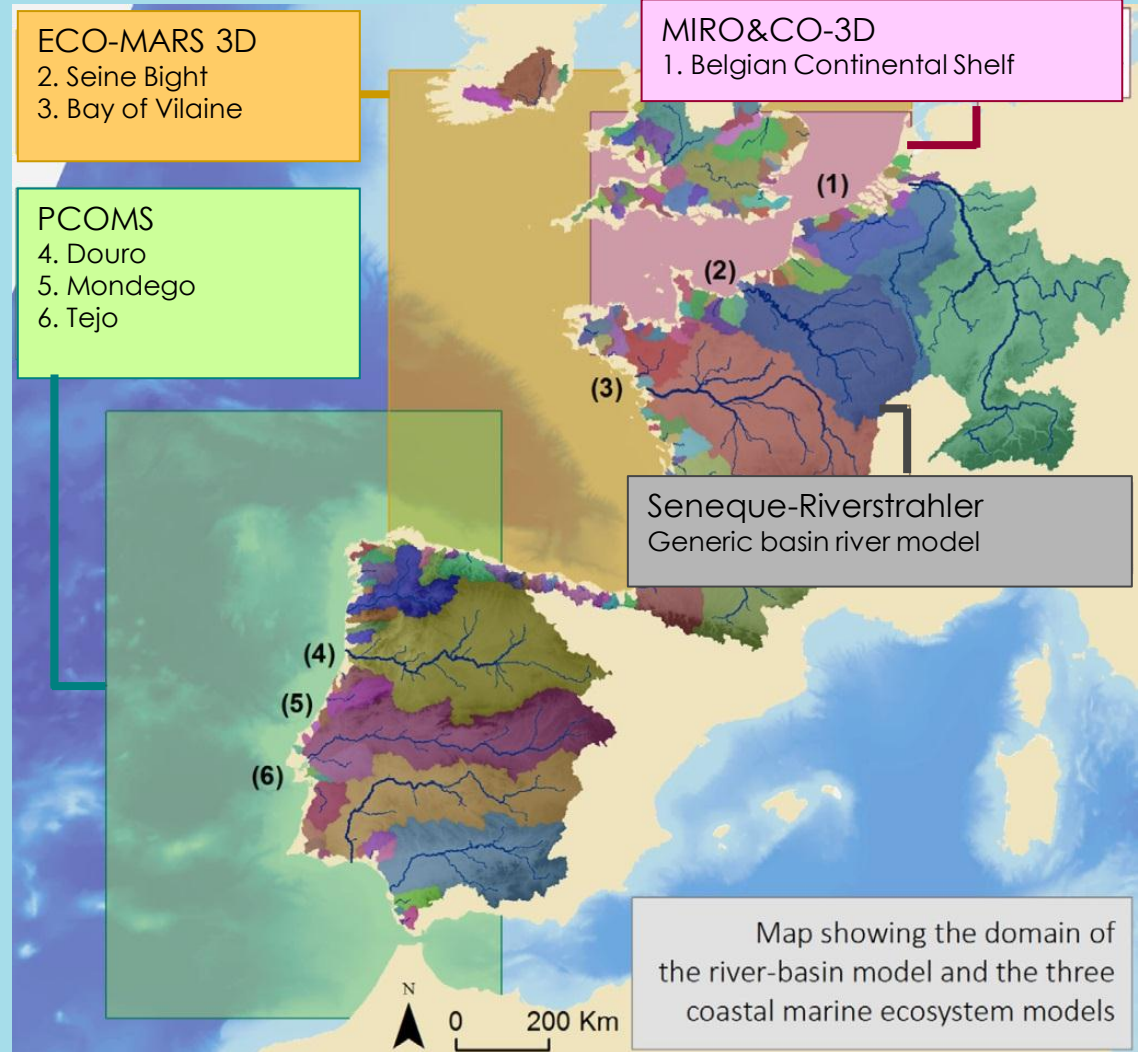


- Ecologically-based indicators
→ eutrophication status
- Marine ecological models
→ track nutrients in the sea & trace back their riverine/oceanic sources
- Generic watershed model coupled
→ Current eutrophication assessment
→ Pristine & realistic reduction nutrient scenarios
- Outcome
→ Member States responsible for WFD & MSFD
→ OSPAR commission.

OBJECTIVES

1. To develop and combine modelling tools describing the **river-ocean continuum** in the NEA continental seas

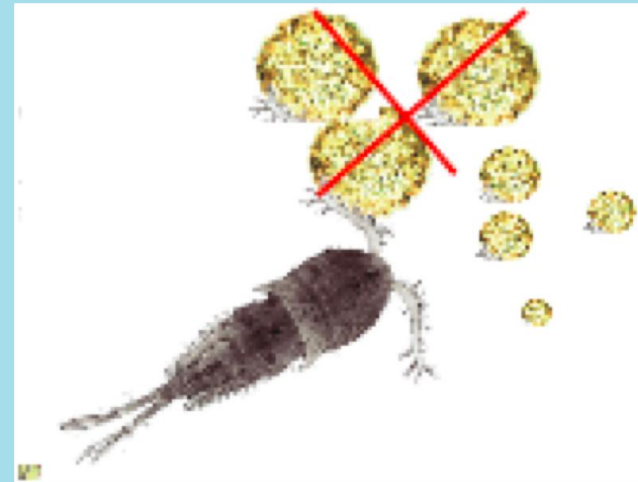
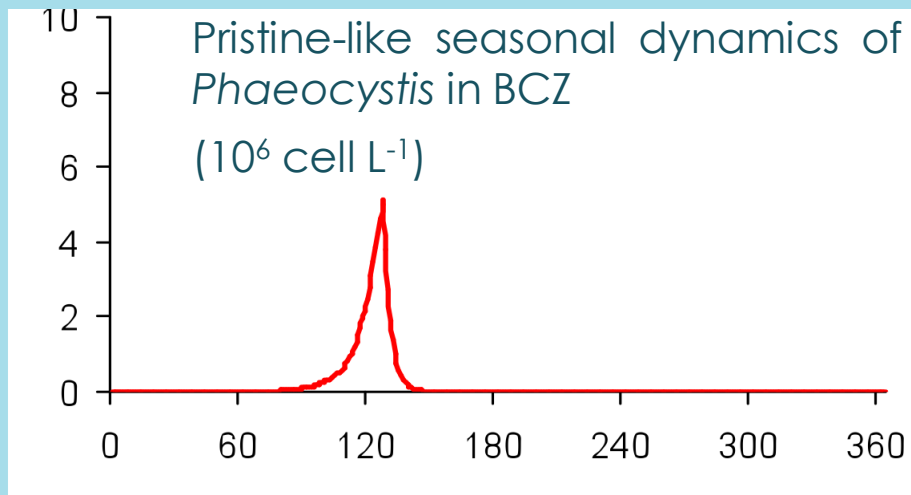
→ link **eutrophication nuisances** in marine regions to **anthropogenic inputs**, and trace back their sources up to the **watersheds**.



OBJECTIVES

2. To suggest **novel indicators** of eutrophication based on the analysis of a reconstructed **pristine-like** NEA watershed and marine ecosystem

Ex: *Phaeocystis* as indicator of foodweb disruption and possible foam accumulation



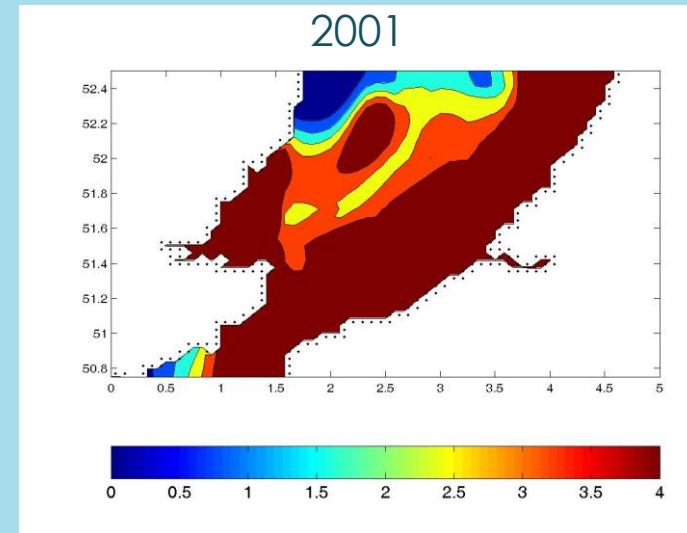
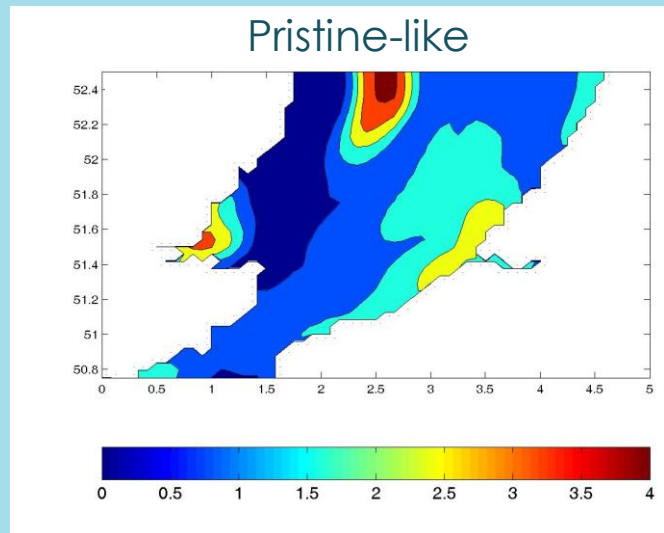
Lancelot, Rousseau, Gypens (2009)

OBJECTIVES

3. To scale current coastal eutrophication problems against natural status (pristine-like scenario) for each coastal zone of the NEA

Ex: coupling Riverstrahler to MIRO&CO (current vs pristine-like scenario)

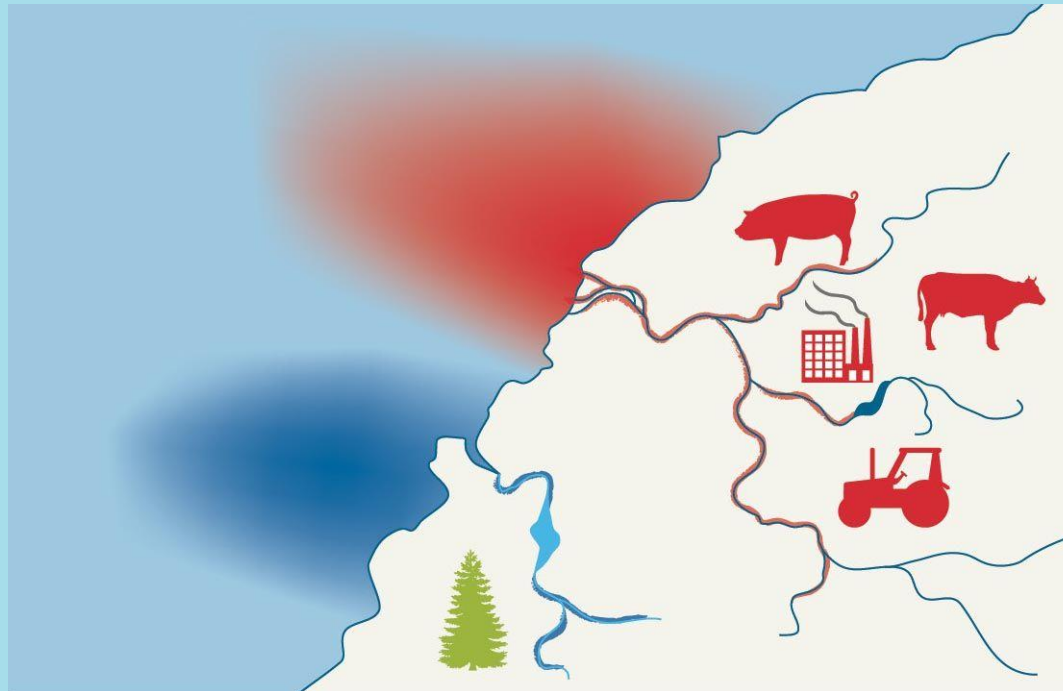
Reconstruction of *Phaeocystis maxima* (10^6 colony cells L^{-1})



Lancelot, Passy, Gypens (in revision)

OBJECTIVES

4. Identify “realistic” scenarios of nutrient reduction in the river watersheds of NEA and assess the impact of these scenarios in the sea.



2013-Mar 2014

Scientific Production. Outputs. (I)

[Involved Partner(s)]
Leader/Presenter

Partner	National	International
Publications		<ul style="list-style-type: none"> - Billen et al., Submitted to International Journal of Limnology [UPMC] - Lancelot, Passy, Gypens., in revision for Harmful Algae [ULB, UPMC]
Books		
Communications to Congresses	<ul style="list-style-type: none"> - Pitch presentation (2nd Award) [VLIZ day, Brugge, Mar 2014] [RBINS, ULB] - Poster [VLIZ day, Brugge, Mar 2014] [RBINS, AII] 	<ul style="list-style-type: none"> - Session chair & poster (EGU, April 2013) [ULB, AII] - Presentation [SWAT, Toulouse, Jul 2013] [UPMC] - Presentation [WK AIMEN, Brest, Aug 2013] [RBINS] - Poster (ECSA53, Shanghai, Oct. 2013) [IFREMER, AII]

2013-Mar 2014

Scientific Production. Outputs. (II)

[Involved Partner(s)]
Leader/Presenter

Partner	National	International
Patents		
PhD Thesis		
Master Thesis		
Other Results		<ul style="list-style-type: none"> • Web: http://www2.mumm.ac.be/emosem/ [RBINS, AII] • Leaflet: project presentation widely distributed [RBINS, AII] • Science policy support: <ul style="list-style-type: none"> - Communication ISC/PA4b [Antwerpen, Mar 2013] [RBINS, AII] - Communication ICG-EUT/ICG-EMO dialogue [ICG-EUT WK, Paris, Feb. 2014] [RBINS, ULB, AII] • Project deliverables: <ul style="list-style-type: none"> - River loads [UPMC] - Catalogue in situ data for model validation [RBINS, IFREMER, IMAR]

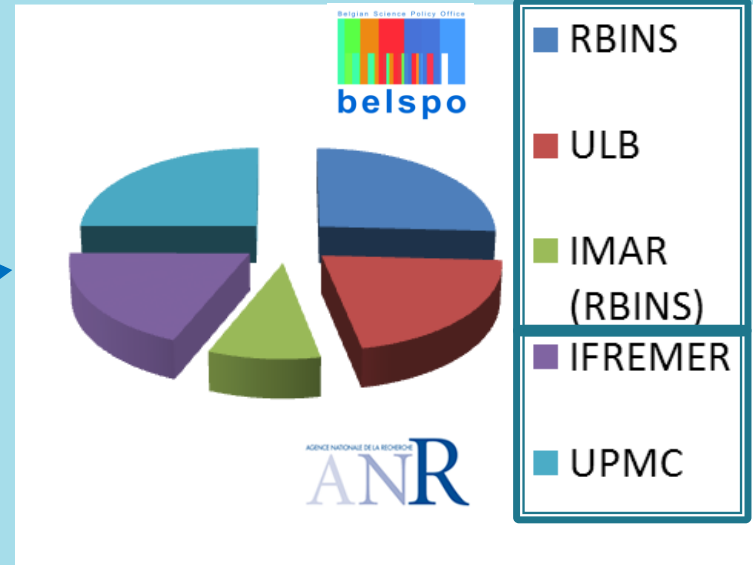
FINANCIAL STATEMENT (I)

■ Funded EMOSEM ■ Own funding

592 669 €



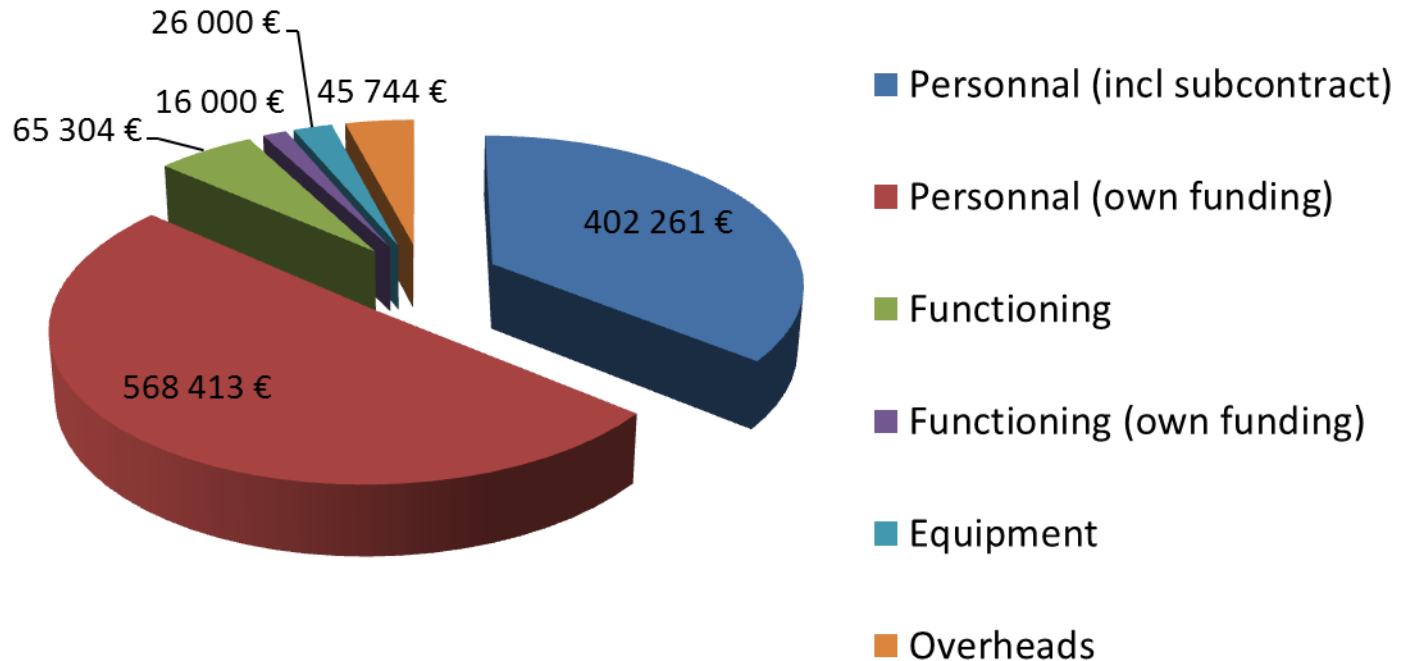
531 053 €



47 % funded

(BE: 64 %, FR: 36 %, PT: 50 %)

FINANCIAL STATEMENT (II)



ADVANTAGES OF THE INTERNATIONAL COOPERATION (I)

Opportunities:

- Eutrophication = Transnational issue / EU management
→ opportunity to build a project on the basis of former collaborations (not more funded) by including new partners
 - Expertise sharing (TBNT, forcing data, in situ data for validation)
- + Cooperation with non funded partners: UHAM, DELTARES & CEFAS
- Expertise sharing (DTT)
 - River loads data base
 - Link OSPAR (ICG-EMO)

ADVANTAGES OF THE INTERNATIONAL COOPERATION (II)

Research objectives:

- NEA continuum (PT, FR, BE) – different eutrophication symptoms
- Possibility of model intercomparison (where overlap)
- Coupling between river-basin and marine models imposes transnational collaborations

Human capacity building:

Possibility to recruit 1 Ing., 1 Researcher, 1 PhD and 1 Post-doc

Budget:

Possibility for funding (PT) throughout subcontract (BE)

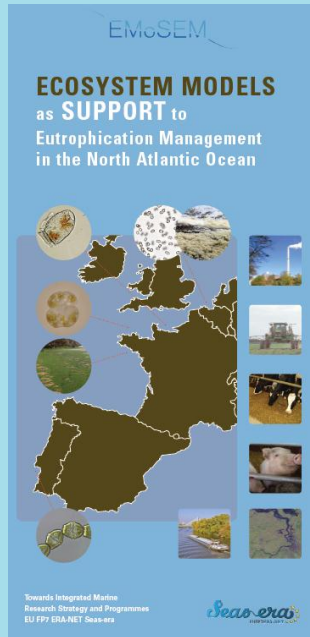
DISADVANTAGES/BARRIERS OF THE INTERNATIONAL COOPERATION

- Limited budget and limited duration
 - Budget shared at national level
 - 2 years is too short
- No real freedom in identifying partners as involvement is member state dependent
 - No possibility to request funding for “collaborators”.

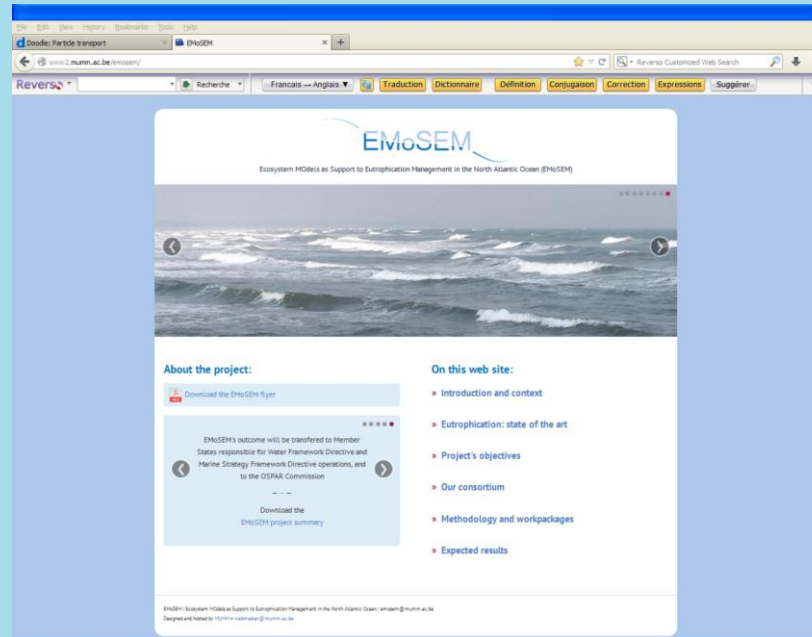
Their participation as “partners” would have been beneficial to the project

More information

Leaflet: project presentation



<http://www2.mumm.ac.be/emosem/>



Scientific report
[Year# 1]

