



## Addressing collective marine biotech and bioprospecting challenges: development, coordination and alignment of national, regional and pan-European research strategies and programmes

Intersessional Workshop on the conservation and sustainable use of marine biodiversity beyond areas of national jurisdiction  
Marine genetic resources

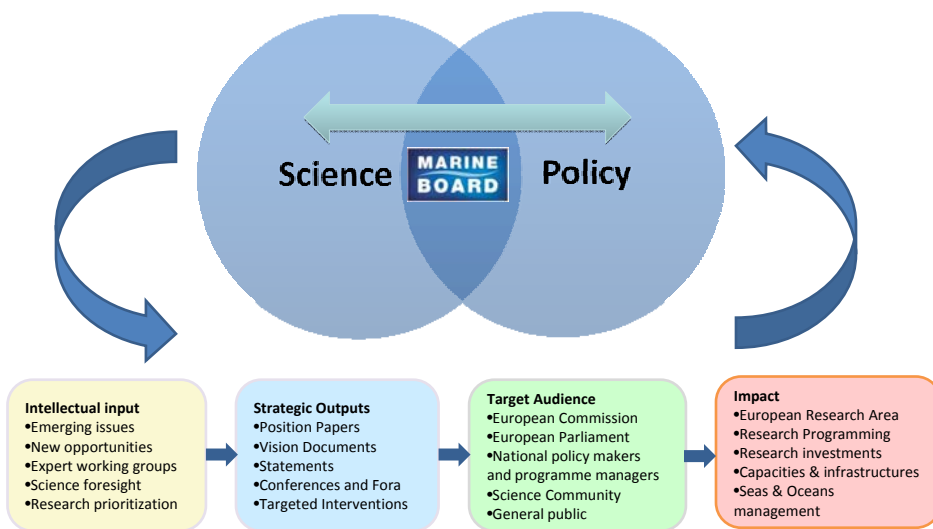
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[www.marineboard.eu](http://www.marineboard.eu)

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The European Marine Board is a partnership of major national marine research and funding organisations which was established in 1995 to facilitate cooperation and coordination in marine science in Europe. *34 Member Organizations from 20 European countries*



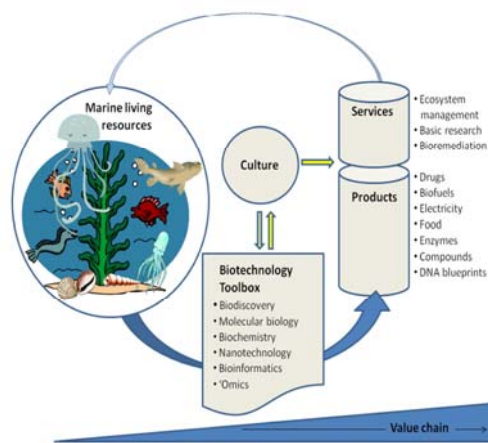
## Presentation outline

- What is Marine Biotechnology?
- Recent strategic events/initiatives in Europe
- Addressing fragmentation and improving collaboration
- Addressing marine biodiscovery policy and legal bottlenecks

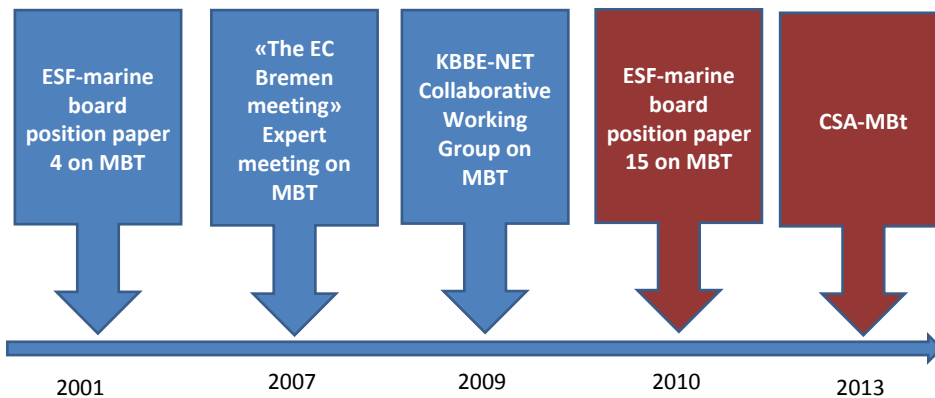
## What is Marine Biotechnology?

... the use of the marine environment and its bioresources as the target or source of biotechnology applications (OECD)

Marine Biotech  
value chain



## Strategic events/initiatives in Europe



Re-emerging challenges identified:

- Lack of a coherent/coordinated pan-European approach
- Policy and legal barriers in the biodiscovery pipeline

## 2010 MBPP15 – Selected recommendations



- **Improve coordination of European Marine Biotechnology** RTD to reduce fragmentation and avoid overlaps/duplication
- **Profile marine biotechnology science policy landscape in Europe** in international context
  - Create a central European portal [www.marinebiotech.eu](http://www.marinebiotech.eu)
- **Address legal issues** (IPR/ABS)

+ SEE ALL RECOMMENDED ACTIONS – download the position paper at [www.marineboard.eu](http://www.marineboard.eu)

# CH1 - Addressing fragmentation and improving collaboration

## At the level of research groups

- Networks of Excellence in Marine Biodiversity (Marbef) and Marine Genomics (MGE) → “Euromarine”

## At the level of infrastructures

- EUOFLEETS (research vessels)
- ASSEMBLE/EMBRC (marine stations and marine model organisms)
- EU-OPENSREEN (high-throughput screening platforms)

## At the science policy and research program level

- Joint Programming Initiative on Healthy and Productive Seas and Oceans (JPI Oceans)
- Creating a network of funding agencies – CSA MarineBiotech

Establishing a network of programme developers and managers from national funding agencies (ERA-NET)



## ERA-NET Preparatory Action (CSA MarineBiotech)

### Main achievements:

- Increasing the understanding of the marine biotech science policy landscape - *Mapping MarineBiotech RTDI*
- Established MarineBiotech Portal
- Mobilisation of funding agencies to form network in marine biotechnology



11 partners from 9 European countries

Duration: October 2011 – March 2013 (18 month)

# Mapping Observations

- Disparity between approaches, focus and mechanisms by which various European countries (and regions) support marine biotechnology research activities
  - Few dedicated strategies, research plans and/or programmes
  - Support for MBT mostly under wider biotechnology or marine science plans and programmes or both
- International interest and activities are increasing
  - E.g. work done by OECD, CIESM, ...
- **Marine biodiscovery** (in particular for health) = one area of common interest among several European countries

## Examples of national strategic documents with an identifiable focus on marine biotech



- **Ireland 2007** : <http://www.marine.ie/home/SeaChange.htm>
  - *"**Sea Change** - A Marine Knowledge, Research & Innovation Strategy for Ireland 2007-2013"*  
Marine Biotechnology, Marine Technology, Marine Functional Food and Renewable Ocean Energy
- **Norway 2009**
  - *"A strategy for **Marine Bioprospecting** – a source of new and viable wealth creation"*  
Encourage use of marine resources, biobanks, international collaboration, innovation – develop value chain
- **Denmark 2010**
  - *"**The Ocean** – a underutilised resource"*  
Better use of marine biomass, healthy diet, bioprospecting for new biological principles and compounds, biofilms

See [www.marinebiotech.eu](http://www.marinebiotech.eu) for regular updates, strategic documents and analysis reports

[www.marinebiotech.eu](http://www.marinebiotech.eu)

## MarineBiotech Infopages (WIKI)

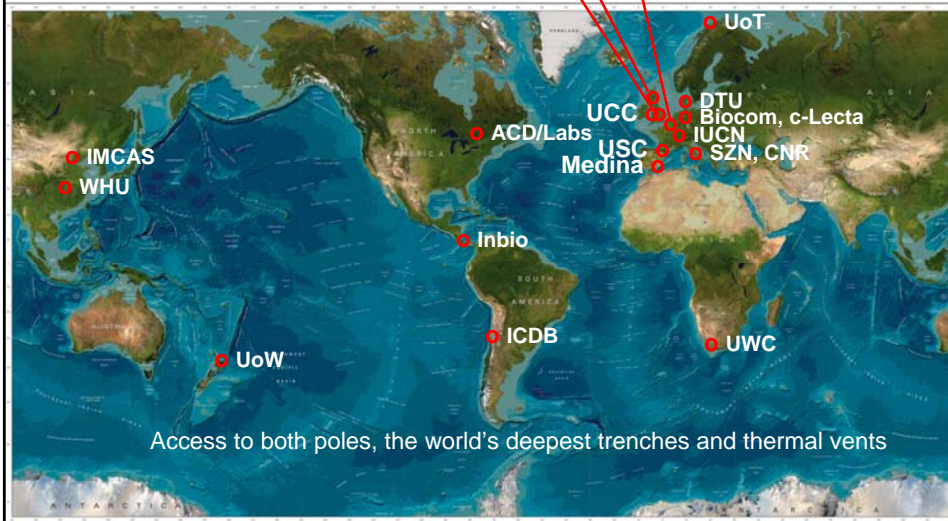
## CH2 - Addressing marine biodiscovery policy and legal bottlenecks

### **Recent FP7 RTD projects looking at policy and legal issues**

- **PharmaSea**: Search of active compounds from deep-sea and extreme environments as novel drug leads, antibiotics or ingredients for nutrition or cosmetic applications
- Exploiting marine invertebrates biodiversity gene resources, sponges and related microorganisms: **BlueGenics**
- Exploiting biodiversity of marine extreme environments for health products cosmetics, food and industrial biotechnology: **SeaBioTech**
- Exploiting marine microbes gene resources using genomics, bioinformatics for biotechnology: **MicroB3**
- Cultivation challenges: **MaCuMBA** – Marine Microorganisms: Cultivation Methods for Improving their Biotechnological Applications

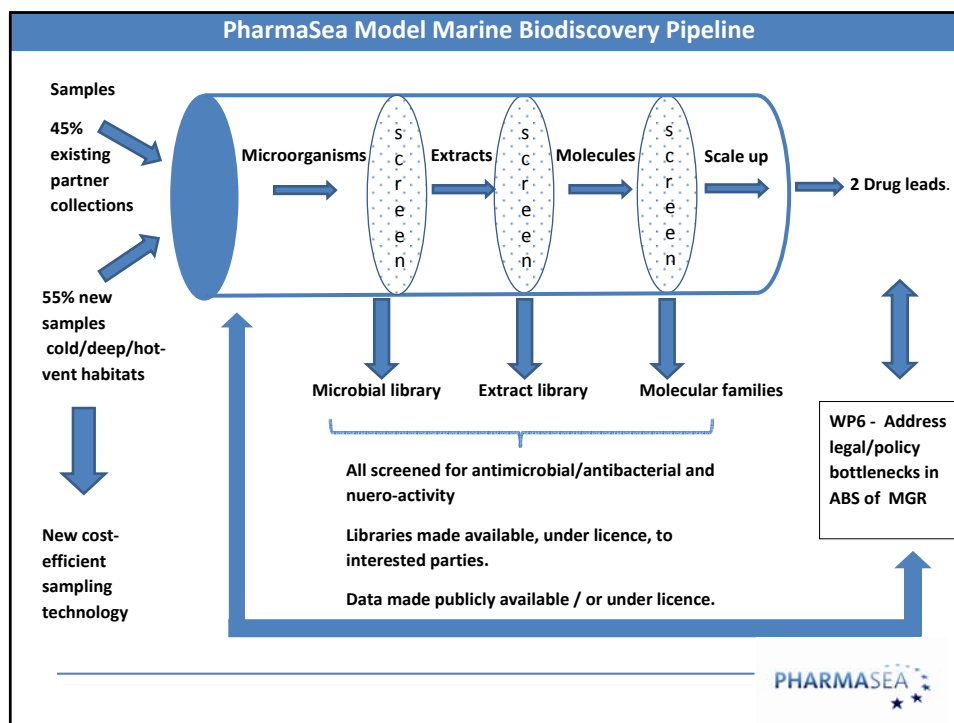
## PharmaSea Partners

UniAbdn, DeepTek, Aquapharm KULeuven, eCoast  
RSC, BioBridge



## PharmaSea - Increasing value and flow in the marine biodiscovery pipeline

- Create a robust “model” marine biodiscovery pipeline to make marine bioresources more attractive to industry
- Identify and overcome chronic **bottlenecks** in the marine biodiscovery pipeline, including **legal/policy/IP aspects** affecting access/utilization of marine bioresources.



## WP6 – Ethics, Policy and Legal Aspects of Access to, and Use of, Marine Genetic Resources

- **Create a platform** to bring together MGR practitioners + legal experts + policy advisors/makers + relevant stakeholders to identify and analyze policy/legal bottlenecks in marine biodiscovery pipeline. **(APPLE)**
- To **analyze and describe current legal and policy landscape** which governs ABS of MGR in a European context.
- **Identify best practice and model agreements** using selected case studies and PharmaSea's ABS arrangements
- Organise two **workshops**. (ABS in EU, options for ABS in ABNJ)
- **Develop a dynamic, web based, "MGR User Toolkit"** – assist users in navigating current policy/legal frameworks. [www.marinebiotech.eu](http://www.marinebiotech.eu)



# Conclusions

## Notable progress

- European coordination efforts ongoing  
→ CSA, marine biotech portal, Euromarine, ...
- Key research priorities are being addressed
  - Cultivation challenges, e.g. microorganisms (MaCUmba)
  - Legal and policy barriers (MicroB3, Pharmasea, Bluegenics, ...)
- Infrastructures are being developed, coordinated and/or improved
  - Research fleets (EUROFLEETS)
  - Access to marine model organisms and marine stations (ASSEMBLE, EMBRC)
- International governance processes, recognition and driving forces (e.g. UNDOALOS, OECD initiative)

## Many challenges remain

- EU: Aligning the various interests, strategies and programmes at different levels (local, regional, national, pan-European)
  - Keeping everyone onboard!
- Securing development of MBt in a sustainable way, protecting the marine environment and MGR
  - Particular attention to deep sea resources
  - Develop new tools and regulations where appropriate
  - Data and knowledge about marine biodiversity and ecosystem functioning is still very limited, in particular in ABNJ
- MGR/ABNJ - Scientific community needs a clear and enabling framework/regime with freedom of sampling for scientific research/monitoring purposes

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## Acknowledgements

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