

Oceans of Opportunities, Rivers of Ideas

How to become a change agent in marine science

Jan Mees, Flanders Marine Institute - VLIZ

- About VLIZ
- *(Ocean science is important, and we will need a lot of it...)*
- We need one voice
- Ideas: European Marine Board
- Opportunities: UN Decade of Ocean Science for Sustainable Development

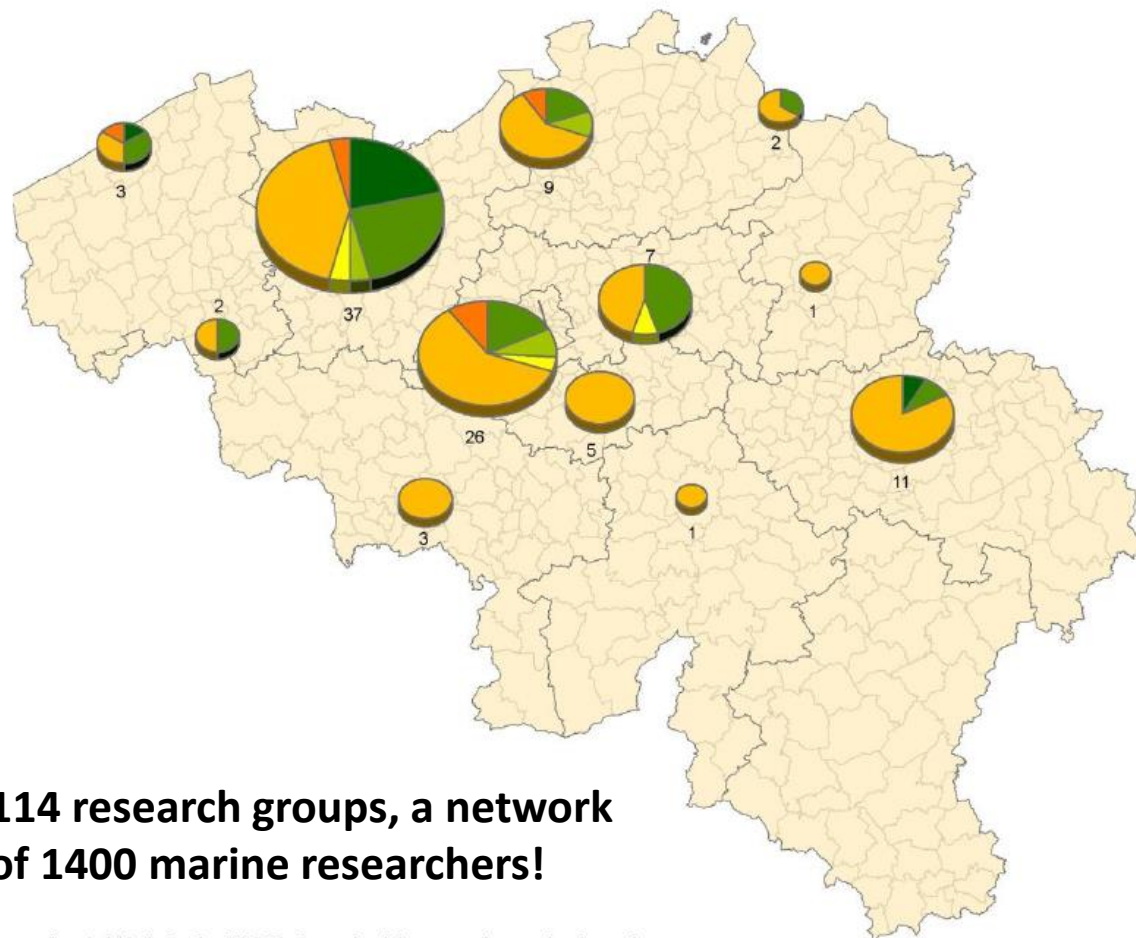
Mission of VLIZ

“to promote the accumulation of marine knowledge and the excellence of marine research in Flanders”

targets: marine research community, education, policy, blue economy, citizens



Marine research community



**114 research groups, a network
of 1400 marine researchers!**

Aantal Belgische MOGs ingedeeld per onderzoeksdomein



A new mandate

1999 - ...

2017 - ...

Facilitate and support research

In addition: perform and initiate research



Created by Creative Staff from Nasa Project



Created by Maimere Alp from Nasa Project



Created by Amwag Ahmad from Nasa Project



Created by Gregor Creator from Nasa Project

Research principles

- Excellent, groundbreaking, hypothesis-driven
- Collaborative!
- Fill gaps, multi/inter/transdisciplinarity
- Societal aspects: informing policy, advancing the blue economy
- International research strategies
- Valorize VLIZ 'capital'
 - Networks and collaborations
 - Infrastructures and data



VLIZ RESEARCH FRAMEWORK

JANUARY 2018



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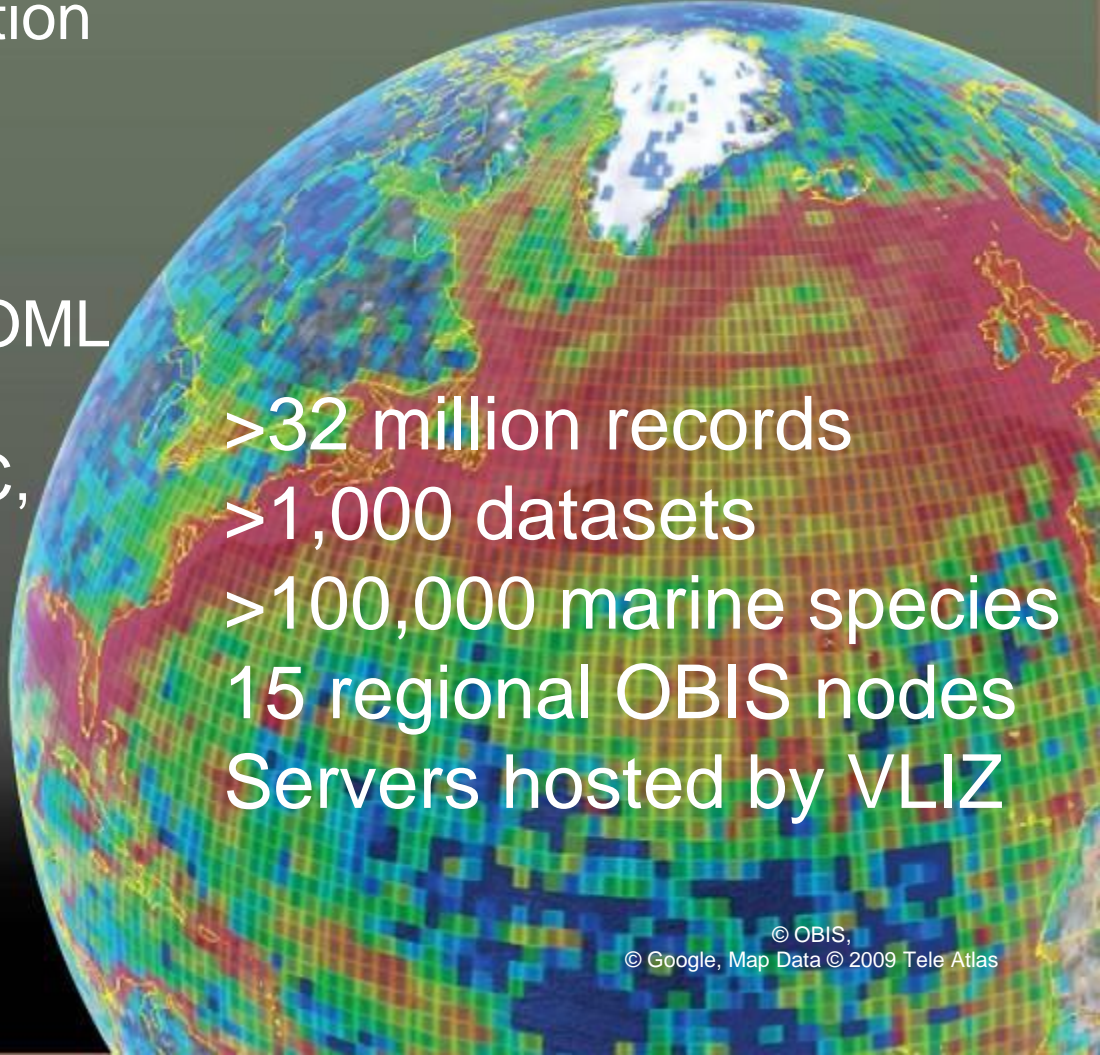
Ocean Biogeographic Information System

Largest source of information
on marine species
distributions

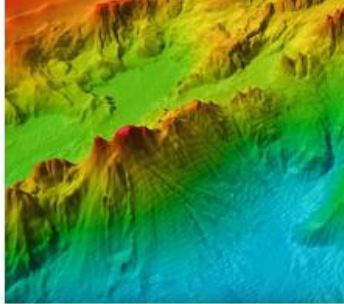
Data legacy of 10-year COML

Adopted by UNESCO-IOC,
project of IODE

www.iobis.org



>32 million records
>1,000 datasets
>100,000 marine species
15 regional OBIS nodes
Servers hosted by VLIZ



BATHYMETRY

Data on bathymetry (water depth), coastlines, and geographical location of underwater features, wrecks.



USE CASES



INFO



ACCESS



GEOLOGY

Data on seabed substrate, sea-floor geology, coastal behaviour, geological events, and minerals.



USE CASES



INFO



ACCESS

SEABED HABITATS

Data on modelled seabed habitats based on seabed substrate, energy, biological zone, and salinity.



USE CASES



INFO



ACCESS



CHEMISTRY

Data on the concentration of nutrients, organic matter, pesticides, heavy metals, radionuclides and antifoulants in water, sediment and biota.



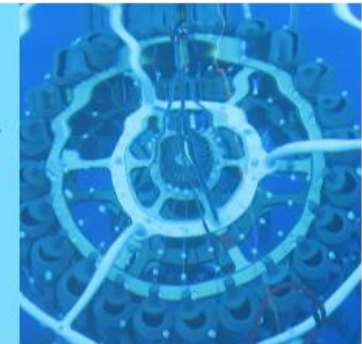
USE CASES



INFO



ACCESS



BIOLOGY

Data on temporal and spatial distribution of species abundance and biomass from several taxa.



USE CASES



INFO



ACCESS



PHYSICS

Data on salinity, temperature, waves, currents, sea-level, light attenuation, and FerryBoxes.



USE CASES



INFO



ACCESS

HUMAN ACTIVITIES

Data on the intensity and spatial extent of human activities at sea.



USE CASES

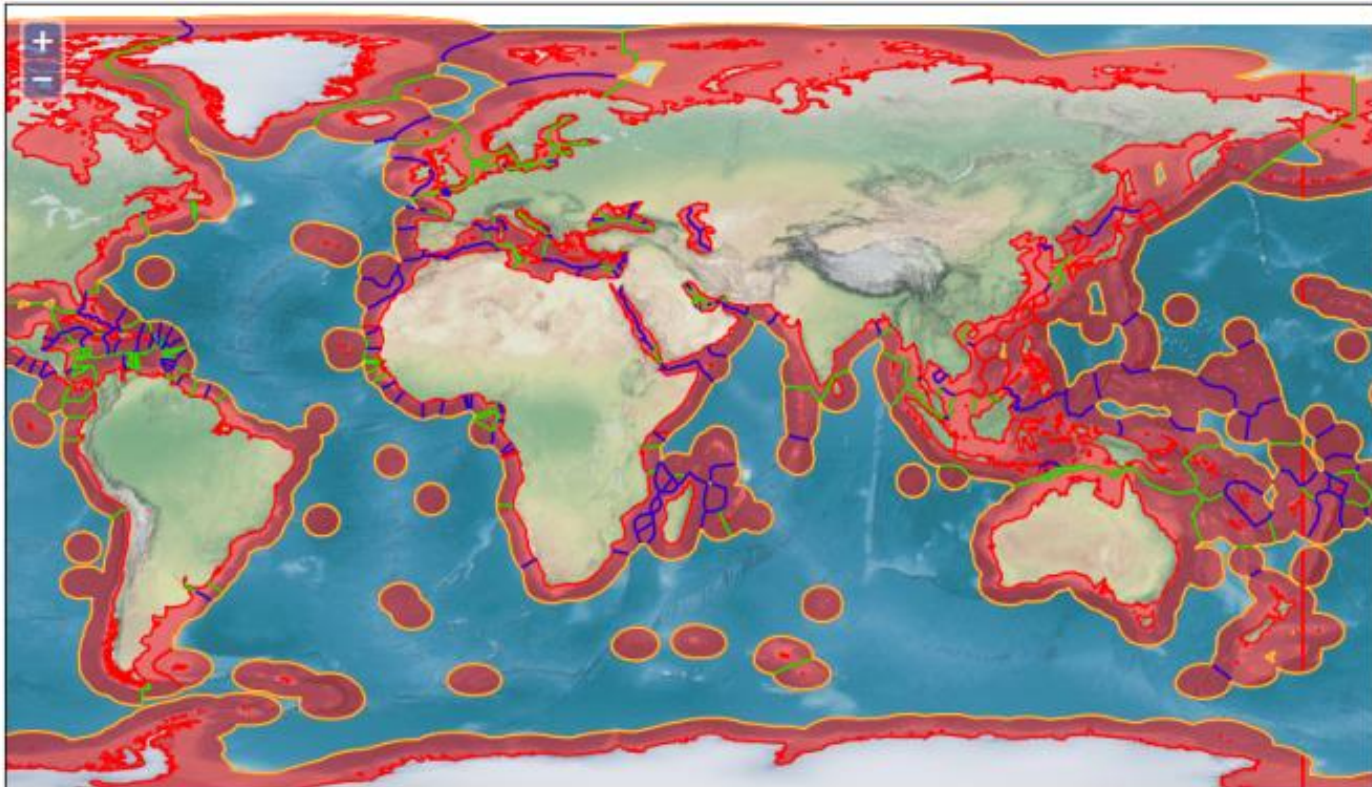


INFO



ACCESS



[Search](#)[Map interface](#)[Methodology](#)[About](#)

- > 45,000 marine georeferenced places
 - > 25,000 polygons of geographic places
 - > 10 geographic regional/global classifications
- Maritime Boundaries (EEZ) of the world

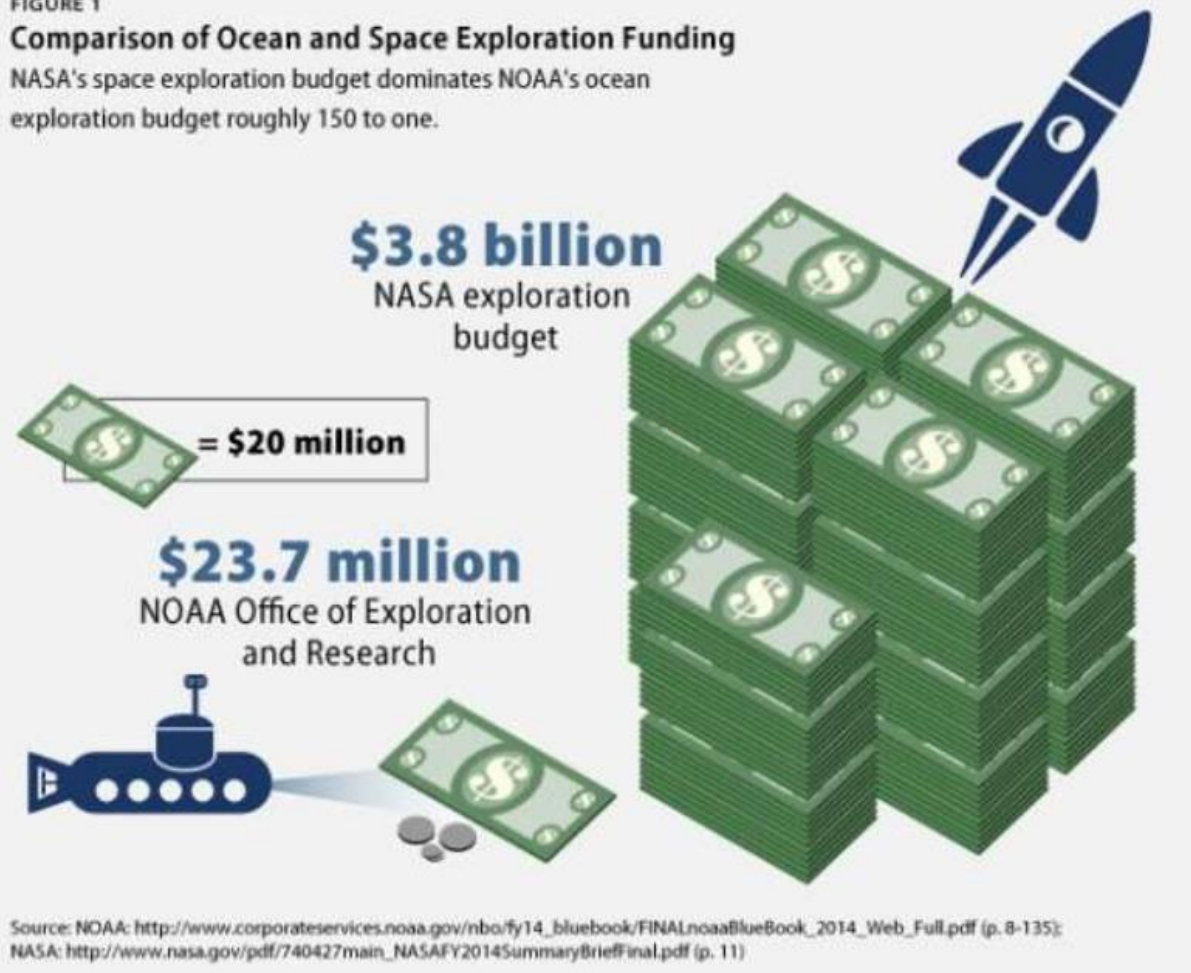
Marine Science funding

[US] Space Exploration Dollars Dwarf Ocean Spending,
National Geographic 2013

FIGURE 1

Comparison of Ocean and Space Exploration Funding

NASA's space exploration budget dominates NOAA's ocean exploration budget roughly 150 to one.



2017: \$481 million dollars for marine vs \$5.8 billion for NASA.

“we should be taking a long, hard look at how we are prioritizing our exploration dollars. If the goal of government spending is to spur growth in the private sector, entrepreneurs are far more likely to find inspiration down in the depths of the ocean than up in the heavens”

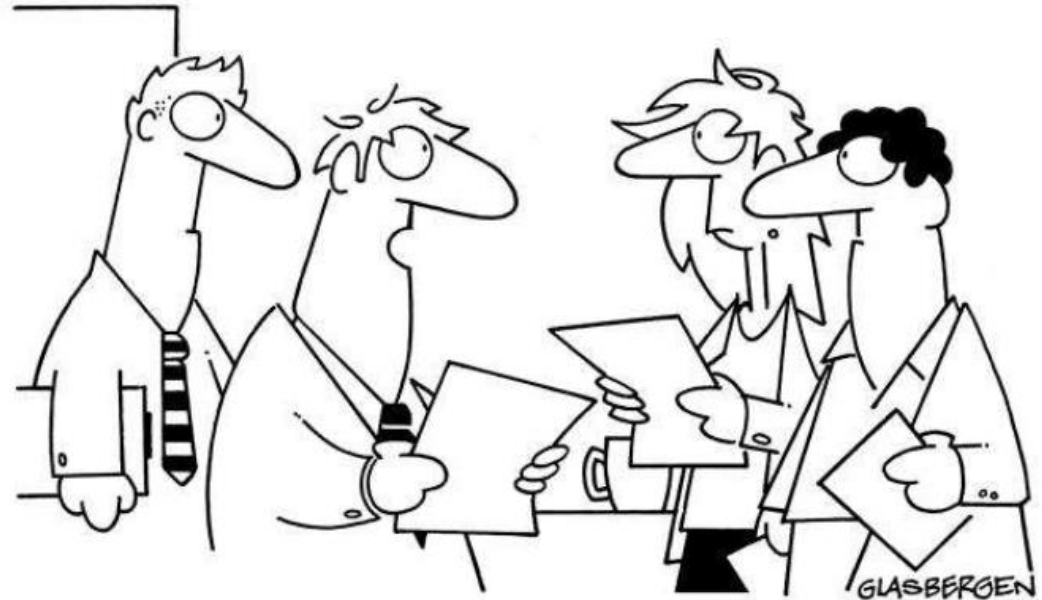
Source: NOAA: http://www.corporateservices.noaa.gov/nbo/fy14_bluebook/FINALnoaaBlueBook_2014_Web_Full.pdf (p. 8-135);
NASA: http://www.nasa.gov/pdf/740427main_NASAFY2014SummaryBriefFinal.pdf (p. 11)

<https://voices.nationalgeographic.org/2013/06/20/space-exploration-dollars-dwarf-ocean-spending/>

We need to be heard....



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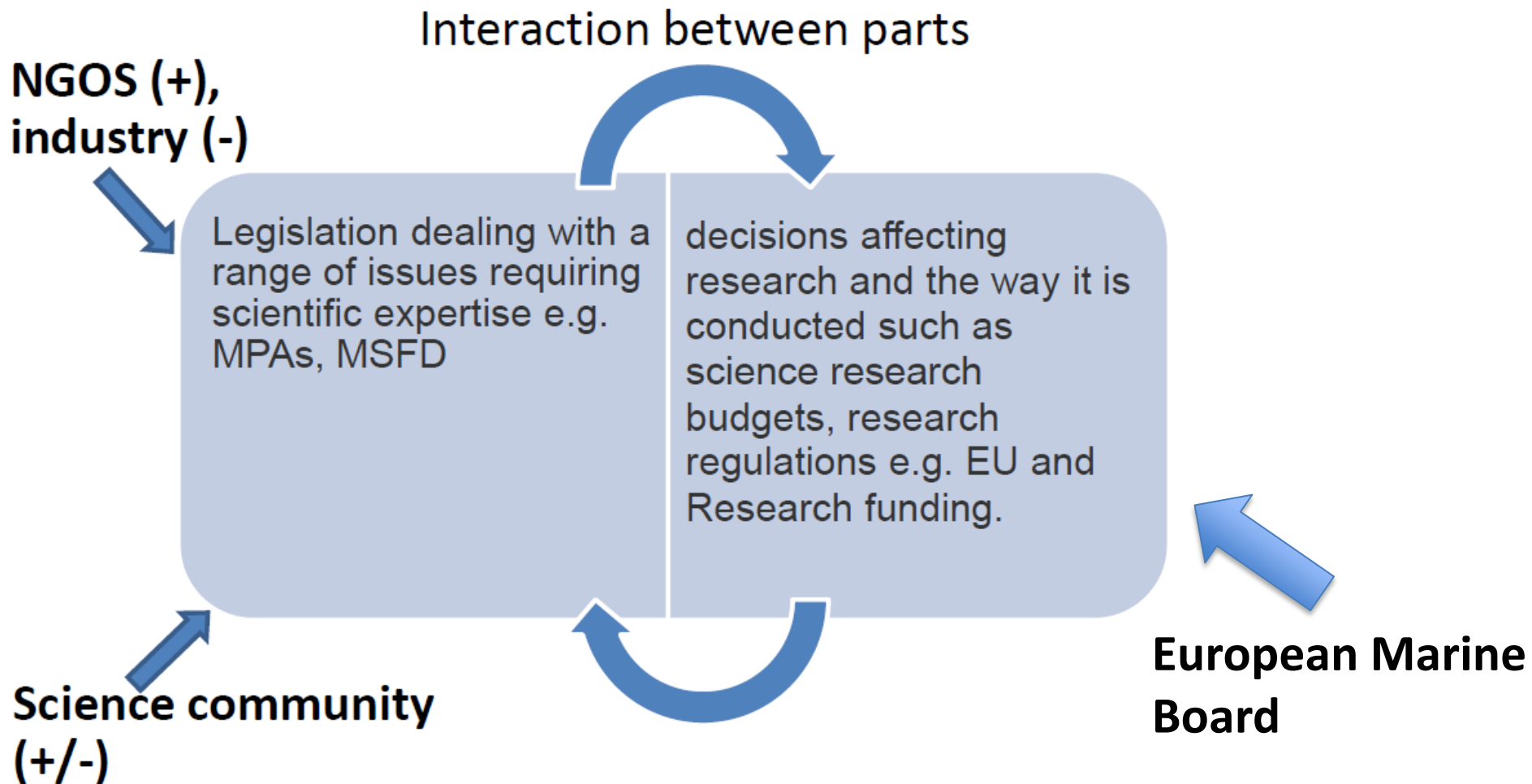
"If we want to succeed as a team, we need to put aside our own selfish, individual interests and start doing things my way."

...Easier with a common voice



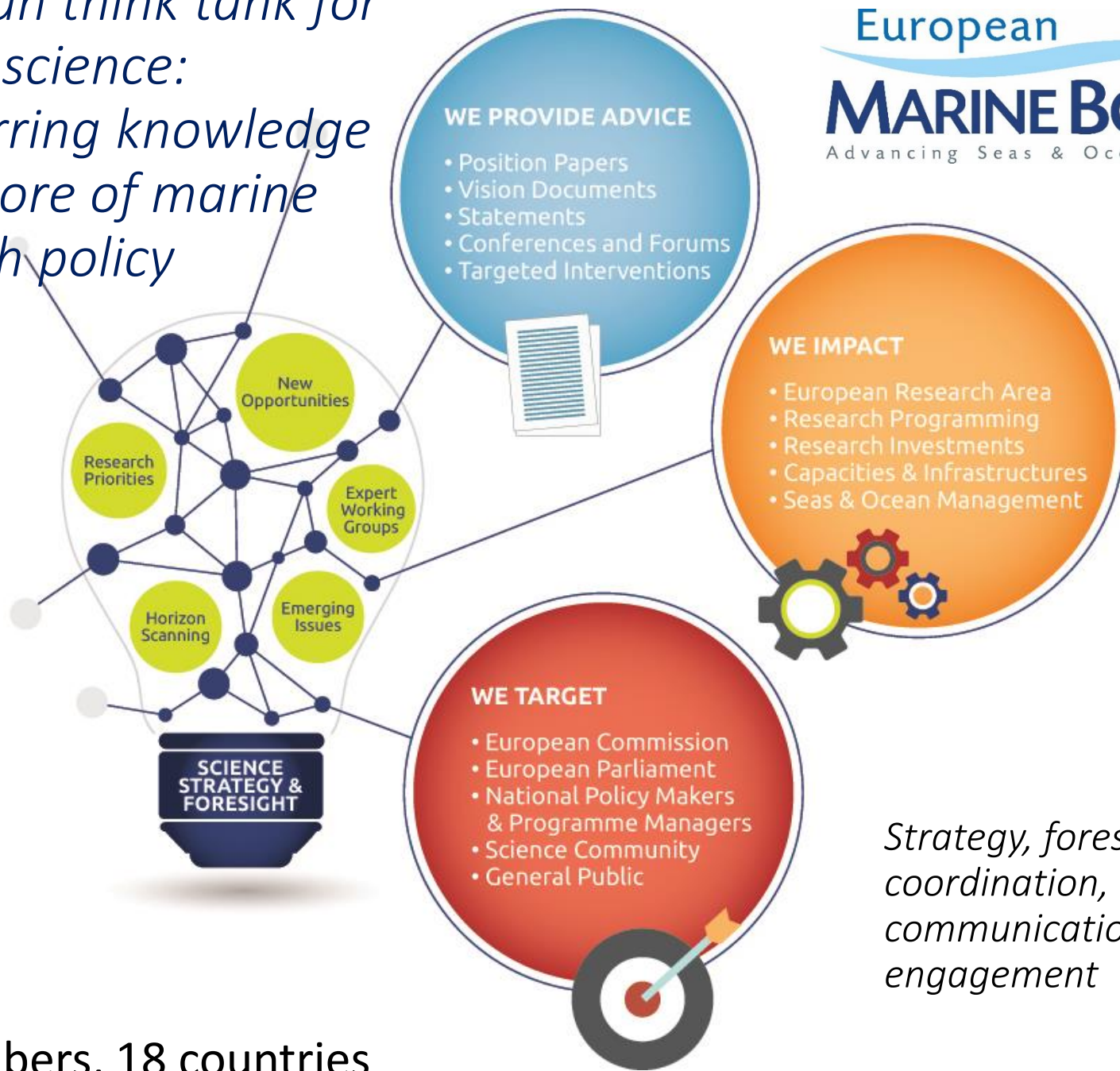
Types of lobbying and engagement

Two categories of science-related legislation requiring engagement



Source: Pain, E. 2014. How Scientists Can Influence Policy. *Science*.

European think tank for marine science: transferring knowledge to the core of marine research policy



Strategy, foresight, coordination, communication and engagement

Marine scientific foresight

- Citizen Science for coastal and ocean research
- Decommissioning of offshore installations
- Marine Biotechnology
- Marine Graduate Training

Advancing Citizen Science for Coastal and Ocean Research

Position Paper 23

EMB POLICY BRIEF N°3 April 2017

Decommissioning of offshore man-made installations

Taking an ecosystem approach

EMB POLICY BRIEF N°4 September 2017

Marine Biotechnology

Advancing Innovation in Europe's Bioeconomy

Future Science Brief N°2 April 2018

Training the 21st Century Marine Professional

A new vision for marine graduate education
and training programmes in Europe

Recent Working Group activities

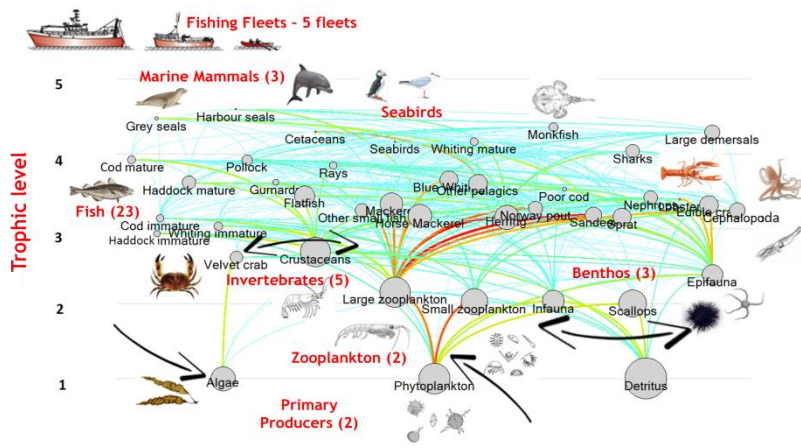
Biological Observations in EOOS

Marine Ecosystem Modelling

Valuing Marine Ecosystems

European Research Vessels

Big Data and Marine Science



Credit: Lars Boehme



Credit: ERVO

Navigating the Future V



- Horizon scan to 2030 and beyond
- Key marine advancements, emerging fields
- Step-change science, high societal impact
- Transformative technologies
- Input to research programming post-2020
- Launch at EurOCEAN 2019 conference




Expert workshop
8-9 November 2017, Brussels

EurOCEAN 2019 conference

High-level science-policy conference co-organised by European Marine Board, the European Commission and the Intergovernmental Oceanographic Commission of UNESCO

11-12 June 2019
Paris, France

“The aim of the EurOCEAN 2019 conference is to highlight the European marine science needed for the EU Framework Programme Horizon Europe and the United Nations Decade of Ocean Science”

A large, brown-tinted iceberg floats in a deep blue ocean. The iceberg's surface is rugged and textured. In the lower right corner, a small red boat with several people is visible on the water. The overall scene is dramatic and emphasizes the scale of the ice.

The United Nations Decade of Ocean Science for Sustainable Development (2021-2030)

WHY A DECADE OF OCEAN SCIENCE

GLOBAL KNOWLEDGE GAPS

99% of habitable marine areas lack basic biodiversity knowledge for their management



3 number of people who have explored the deepest known point of the ocean



1 MILLION approximate number of marine species that could still be unknown to science



103 MILLION square miles of deep sea are in perpetual darkness



ONLY 5% of the ocean floor has been mapped at high resolution

WHAT WILL THE DECADE ACHIEVE?

The Decade will mobilise resources and technological innovation in ocean science needed to:



TRANSFORM
knowledge systems to support sustainable development



BOLSTER
ocean observing and data systems



MEASURE
cumulative impacts for effective solutions



DELIVER
best available knowledge to decision-makers



REDUCE
vulnerability to ocean and coastal hazards



ACCELERATE
transfer of marine technology, training and education

THE DECADE WILL ALSO SUPPORT KEY APPLICATIONS FOR SOCIETY INCLUDING:



Coastal zone management and adaptation



Marine spatial planning/blue economy



Establishment of marine protected areas



Fisheries management



Nationally determined contributions to UNFCCC



Development of national ocean policies



Development of national R & D strategies



Regional and national capacity development planning



Early warning systems

The United Nations
Decade of Ocean Science
for Sustainable Development
(2021-2030)



2021 United Nations Decade
2030 of Ocean Science
for Sustainable Development

**The Science
We Need for the
Ocean We Want**



**THE DECADE WILL PROVIDE A
'ONCE IN A LIFETIME' OPPORTUNITY
FOR NATIONS TO WORK TOGETHER
TO GENERATE THE GLOBAL OCEAN
SCIENCE NEEDED TO SUPPORT THE
SUSTAINABLE DEVELOPMENT OF
OUR SHARED OCEAN.**

GET INVOLVED <https://en.unesco.org/ocean-decade/get-involved>

**FOLLOW
VLIZ!**

VLIZoostende



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VLIZoostende



@jmeesvliz



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