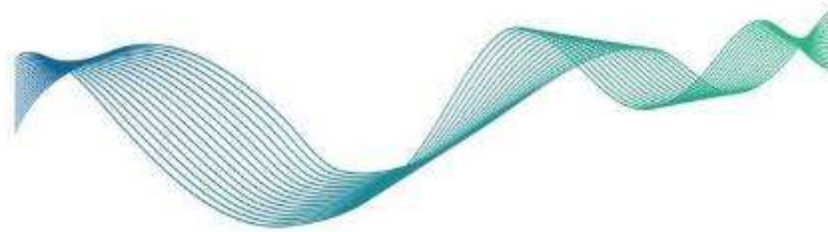


MarineBiotech



The MBT Research and Innovation Roadmap and the Bioeconomy

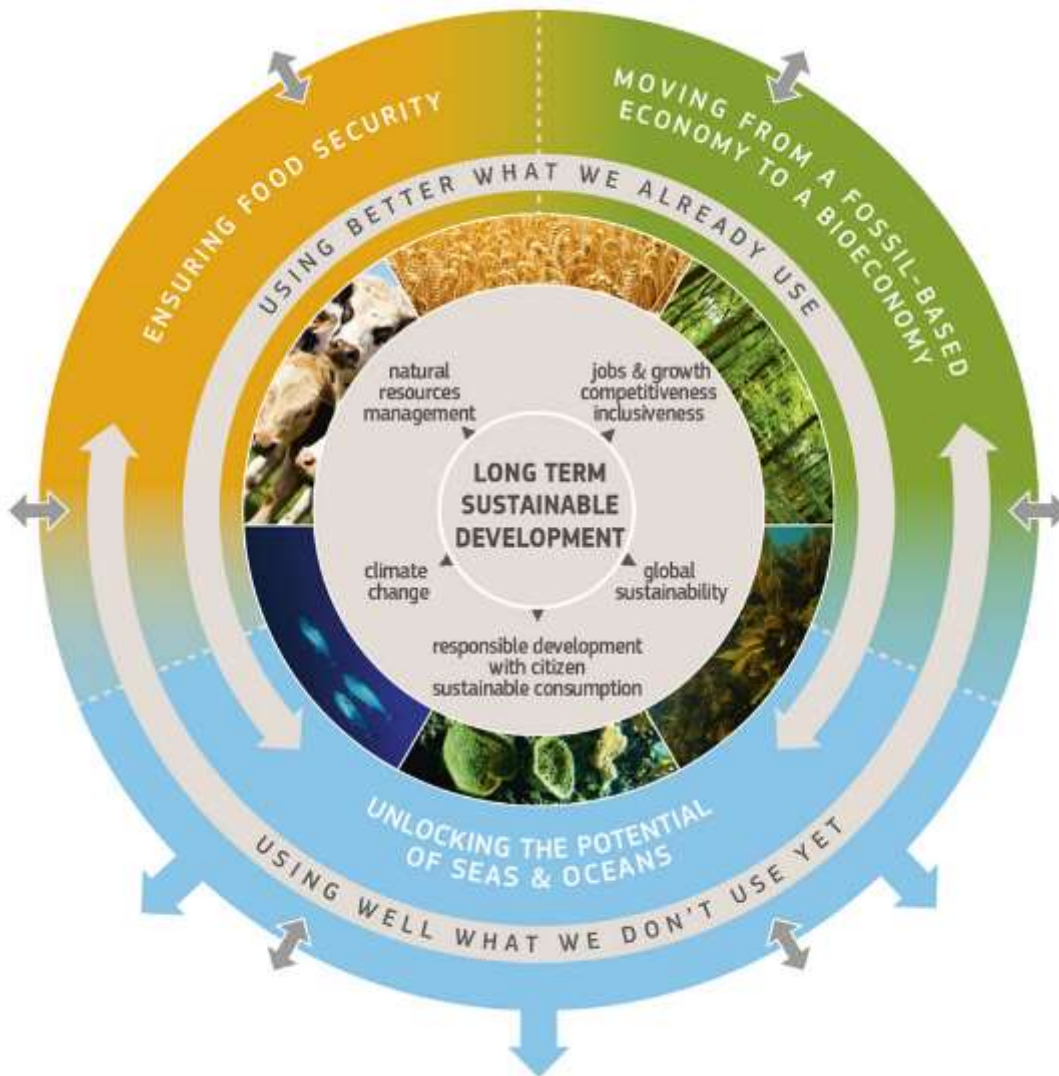
Dermot Hurst

Marine Institute Ireland

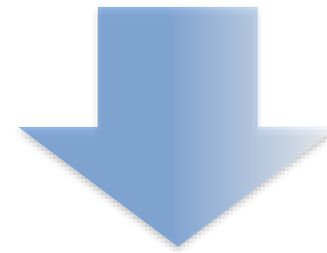


Marine Biotechnology ERA-NET (ERA-MBT) is funded under the European Commission's Seventh Framework Programme. Grant Agreement Number 604814
December 2013 - November 2017

Europe's bioeconomy



Biological resources include crops, forests, fish, animals and their by-products, micro-organisms and also industrial feedstock resources such as municipal solid waste and wastewater.



Parts of the economy that use renewable biological resources from land and sea to produce food, feed, biomaterials, chemicals, pulp and paper, energy and fuels

Goals for Europe's bioeconomy

In 2012 EU bioeconomy had a turnover of nearly €2 trillion and employed more than 22 million people (9% of EU workforce)

It includes agriculture, forestry, fisheries, food and pulp and paper production, as well as parts of chemical, biotechnological and energy industries.

Each euro invested in EU-funded bioeconomy research and innovation is estimated to trigger €10 of value added in bioeconomy sectors by 2025.

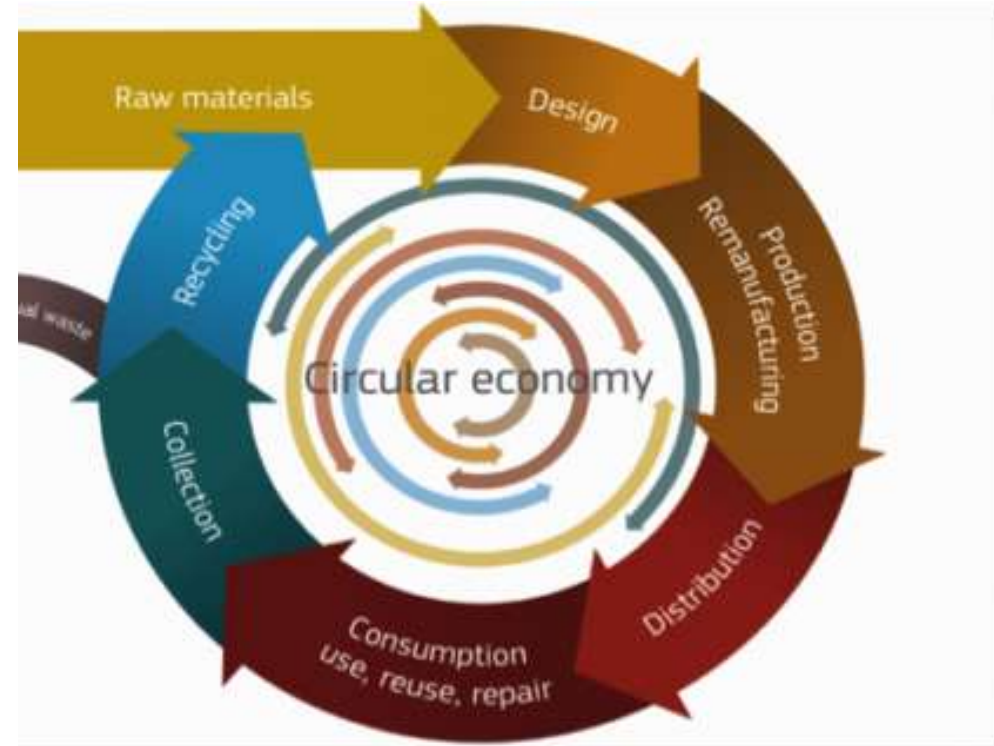
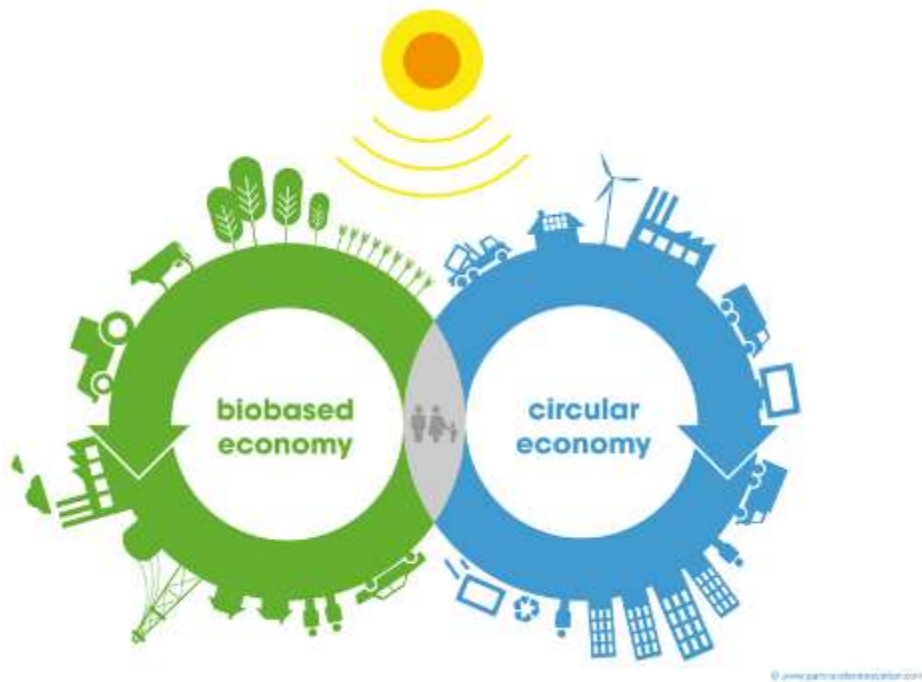
Source: European Commission Press release
http://europa.eu/rapid/press-release_IP-12-124_en.htm

Realising the goals rely on science and innovation

- Life sciences, agronomy, ecology, food science and social sciences
- Enabling and industrial technologies (biotechnology, nanotechnology, information and communication technologies and engineering)



Added dimension to bioeconomy



Contributions to the Roadmap



OUTLOOK was designed to

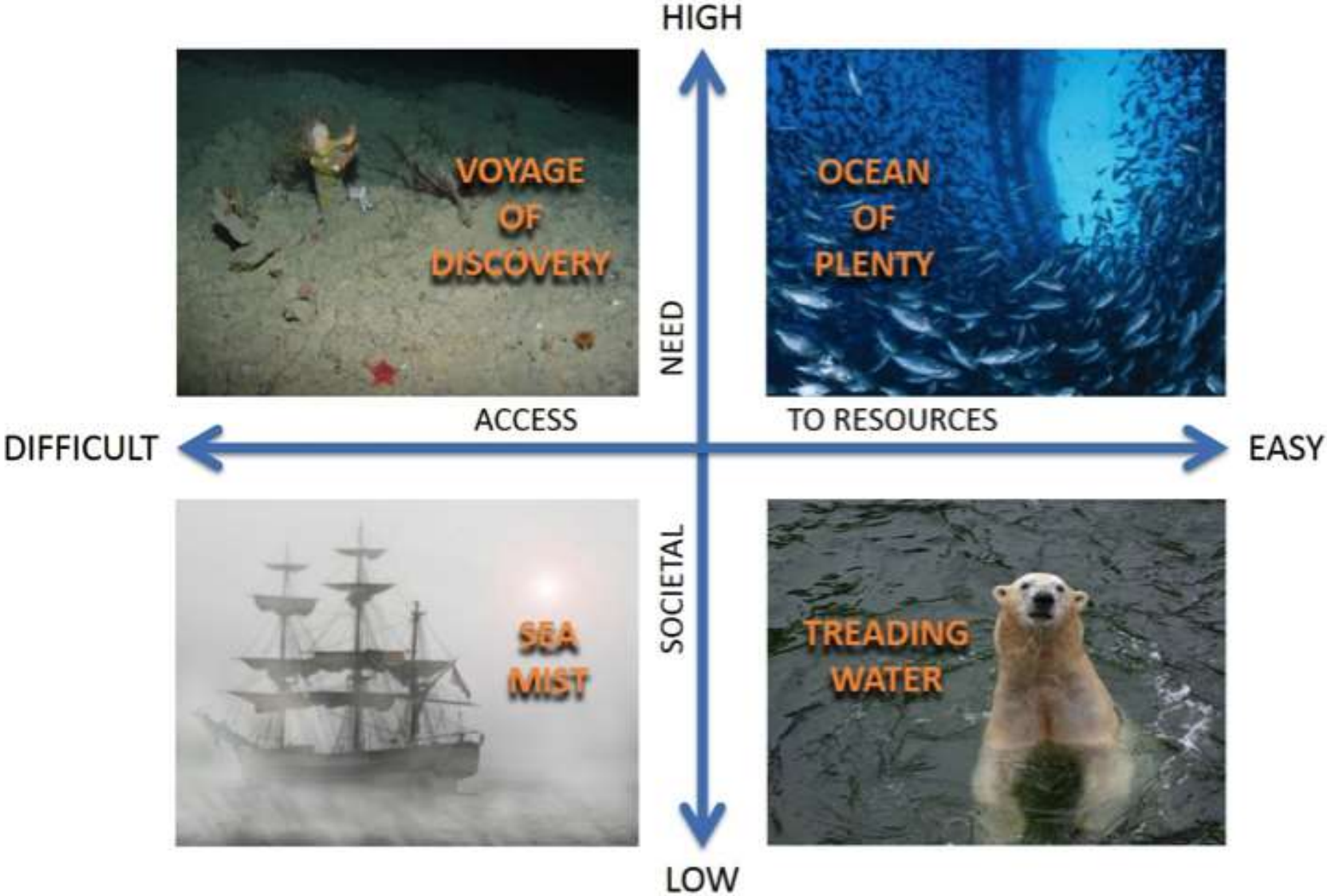


FUTURE

To develop and describe a set of scenarios that summarise the situation and role of marine biotechnology in the year 2030 in respect of its likely contribution to the achievement of successful outcomes to Europe's societal challenges



Four scenarios developed



VOYAGE OF DISCOVERY

- High demand for novel materials
- Difficulties in accessing materials
- Regulatory systems a barrier
- Protection of wild stocks
- New S&T solutions required

HIGH

OCEAN OF PLENTY

- Strong awareness of MBT
- Discovery for food, health and materials/processing
- Well developed systems for discovery
- Resources managed sustainably

NEED

DIFFICULT

ACCESS TO RESOURCES

EASY

- Low awareness of MBT
- Low demand except for food
- Discover targets known bioresources
- Focus on cultured biomass
- Knowledge and expertise gaps

SOCIETAL

- Ease of access for food use
- Technology focus is on productivity
- Low demand except food
- R&D funds target food/environment
- MBT not prioritised

SEA MIST

TREADING WATER

LOW

Review of scenarios

Sources of marine biomass

- Fish and algae
- New species
- Processing discards
- Marine bacteria and other microorganisms
- Novel species discovered and farmed

Opportunities

Challenges

RTDI Gaps

- Expand aquaculture for fish and algae
- Utilise low trophic systems
- Off shore aquaculture
- Farm the marine environment
- Target underutilized species
- Fishing and aquaculture discards
- Culturing micro-organisms

- Knowledge about low trophic systems
- Locating new species
- Farming new species
- Sustainable harvesting

Ensure future research covered each scenario



Research themes identified

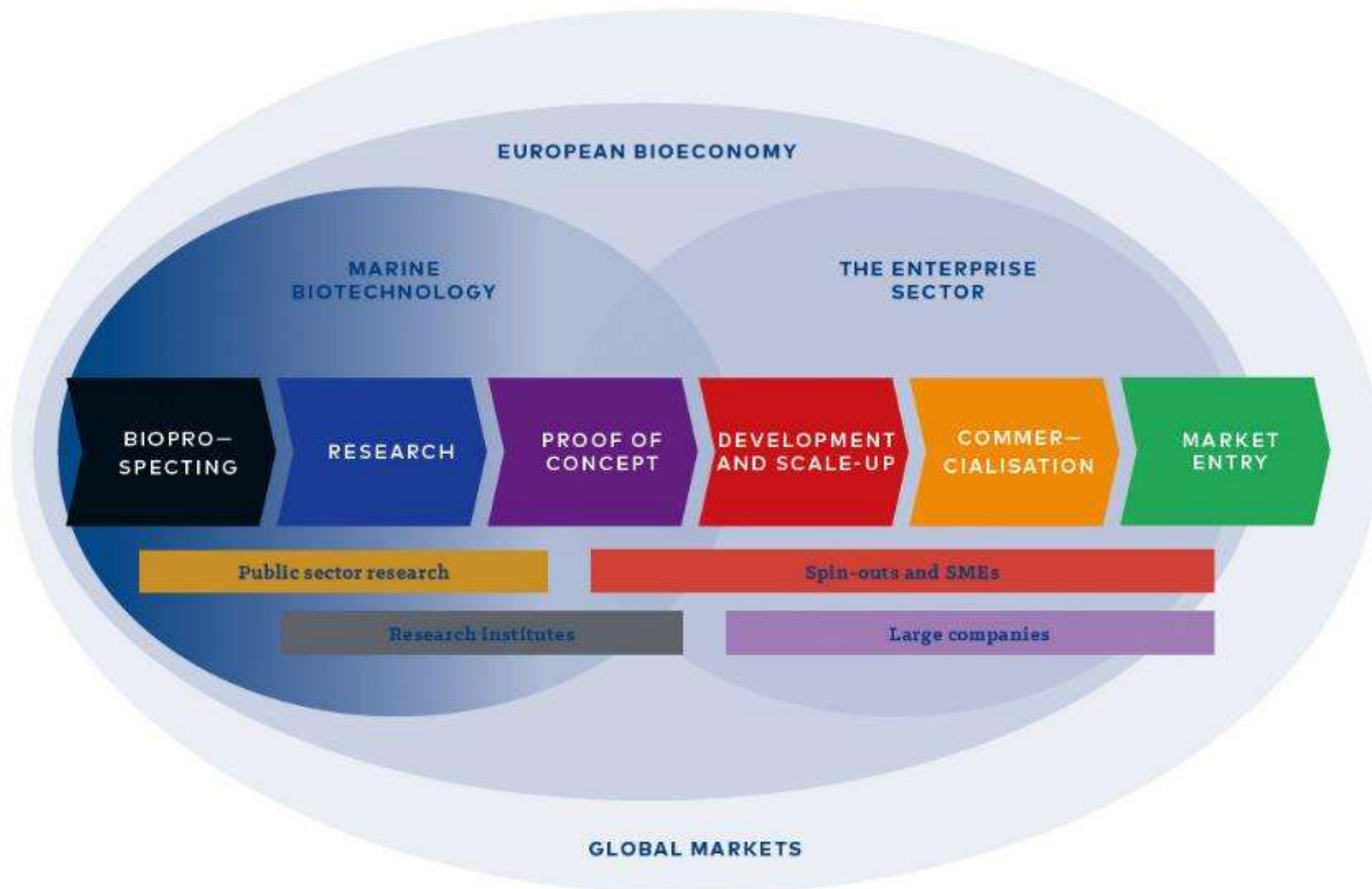


Sub-themes and timescale

The roadmap development process



A position for marine biotechnology



MARINE BIOTECHNOLOGY STRATEGIC RESEARCH AND INNOVATION ROADMAP

INSIGHTS TO THE FUTURE DIRECTION
OF EUROPEAN MARINE BIOTECHNOLOGY

- A key element of the ERA-MBT project deliverables
- Secured extensive inputs from an array of contributions
- Resulted in a plan to increase the role of biotechnology in unlocking the value of marine bioresources
- Provides insights to future challenges and opportunities

Theme: *Exploration of the marine environment*



- Target sources of marine organisms/ biomass
- Identify marine species and characterise materials
- Access marine habitats



Theme: *Biomass production and processing*



- Sustainable use of wild species
- Sustainable culture of marine organisms
- Transformation/refining marine biomass



Theme: *Product innovation / differentiation*

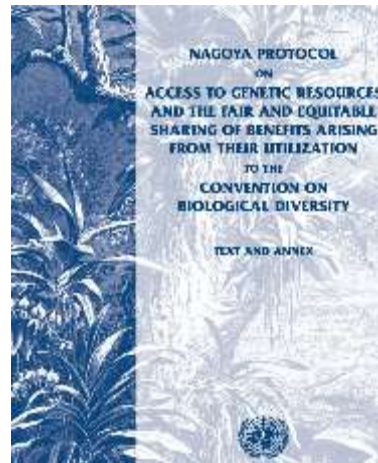


- Human and animal health products
- Food and feed products
- New industrial products and processes
- Environmental measures



Theme: *Policy support and stimulation*

- Develop the bioeconomy
- Legal issues
- Environmental regulations



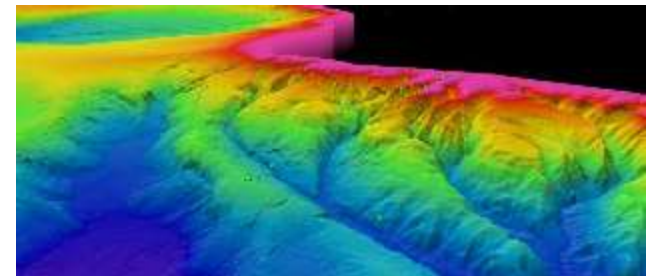
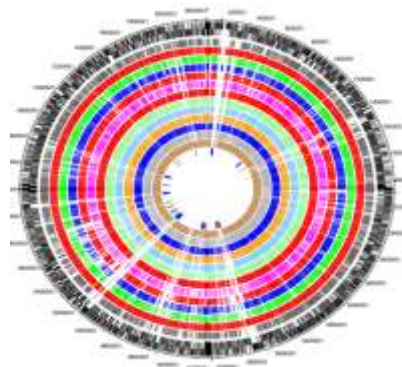
Theme: *Enabling technologies / infrastructure*



- R&I networks and collaboration
- Development of the marine biotech toolbox
- Supporting infrastructure

NEPTUNA

Novel Extraction Processes for multiple high-value compounds from selected Algal source materials



Role and impact



- Providing direction to research calls
- Informing national research strategies
- Creating awareness
- Accepted by and used by EU Commission



Acknowledgement

- Partners in the ERA-MBT project
- The International Advisory Group of ERA-MBT
- Participants in meetings, workshops and surveys

Thank You