

The “most intelligent picture” in marine science?

Experts in marine science emulate the greatest minds in history and Navigate the Future of seas and Ocean science for the future of Europe.

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Participants of the Navigating the Future V Foresight Workshop emulating the famous photograph of the First Solvay Conference in 1911 – ref. [Wikipedia](#)

Strongly advocating for a Mission Ocean under the upcoming ninth framework programme for research and innovation (FP9), the European Marine Board has begun the work on the new instalment of its flagship series, [Navigating the Future V](#) (NFV). This position paper will provide robust, independent scientific advice and expert opinion on future seas and Ocean

research to 2030 and beyond. The experts of the EMB identified 5 key areas of marine science, during the [NFV Foresight Workshop](#) in November 2017, to guide both the research and the science policy agendas at European and national level:

- Improve knowledge of the **4-Dimensional Ocean** (a volume that changes in the time dimension) and its role in the earth and climate system, including the human component;
- Assess **impacts of** multiple and cumulative **human stressors** to the dynamic, non-linear and rapidly changing Ocean system;
- Improve understanding and predictability of **extreme events** through an integrated approach, including natural hazards and climate induced impacts affecting the Ocean;
- Advance capabilities in ocean technologies leading to wider developments in **Information Technology and Artificial Intelligence**;
- Foster **sustainability science** integrated with marine science as a core component of natural and social sciences.

The European Marine Board (EMB) is in dialogue with the Intergovernmental Oceanographic Commission of UNESCO to consider these 5 key areas of marine science and promote holistic and integrated approaches to develop the common Implementation Plan for the UN '[Decade of Ocean Science for Sustainable Development \(2021-2030\)](#)'.

“Navigating the Future V will be regarded as an authoritative foresight report on European marine science” said Jan Mees, Chair of the European Marine Board. *“These five key areas of marine science will serve as a compass for stakeholders to foresee the future of seas and Ocean research, setting priority recommendations and future scientific challenges in the context of European needs.”*

On 8-9 November 2017, the NFV Foresight Workshop took place at the Hôtel Métropole Brussels, a historical hotel that hosted in 1911 the first international Physics Solvay Congress. That same conference led in 1927 to “[the most intelligent picture ever taken](#)”, where 17 of the 29 attendees were or became Nobel Prize winners, including Einstein, Bohr, Skłodowska-Curie, Planck, Schrödinger,

Heisenberg and Auguste Piccard. The latter built the [Bathyscaphe Trieste](#), the underwater vehicle that brought his son Jacques Piccard and the American mariner Don Walsh to the very depth of the Challenger Deep. Auguste Piccard inspired the Belgian cartoonist Hergé, the author of [The Adventures of Tintin](#), for the character Professor Calculus, the inventor of the “shark-proof submarine”, the famous submarine appearing on the cover of the volume 12 of the series: [Red Rackham's Treasure](#).

Throughout 2018, EMB will communicate the main messages from NFV, and the final publication is expected in Spring 2019. The resulting Navigating the Future publication will be written by the marine science community in a format accessible to international, European and national research programme managers, policy-makers, industry and the marine and wider earth system science community itself. This series provides regular pan-European summaries of current status of marine research, priority recommendations and future scientific challenges in the context of European needs.

Visit the European Marine Board website to keep track on developments about Navigating the Future <http://www.marineboard.eu/>

Notes to editors

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The European Marine Board (EMB) is a leading European think tank in marine science policy. EMB is a network with a membership comprising major national marine/oceanographic institutes, research funding agencies and national networks of universities from countries across Europe. The Board provides a platform for its member organizations to develop common priorities, to advance marine research, and to bridge the gap between science and policy to meet future marine science challenges and opportunities.

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