

# European Marine Board Expert Working Group

## *Next generation European Research Vessels*

Kick-off Meeting 15-16 May 2018 - Bergen



- Reviewing the current status of European RVs and related equipment.
- Identifying the progress made since the previous EMB Position Paper in 2007, including new advancements and requirements.
- Assessing the role of RVs as part of the EOOS and within the scope of advancing marine and ocean science research.
- Exploring options for future management of the fleet within Europe, exploring wider-ranging collaborations, co-ownership, chartering, training at sea opportunities, etc.
- Exploring options for enhancing the European Research Fleet capability as a world-class infrastructure resource for the international marine research community and finding ways to further enhance existing collaboration between projects, networks and nations to enhance access, training and interoperability opportunities, and hence cost-efficient use of these valuable resources.

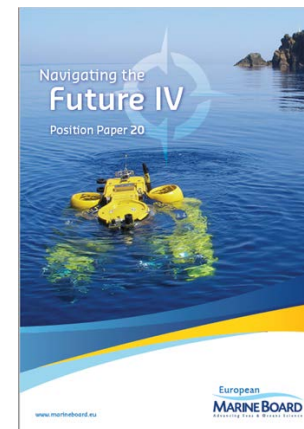
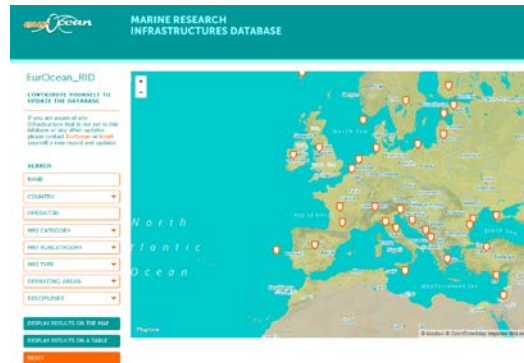
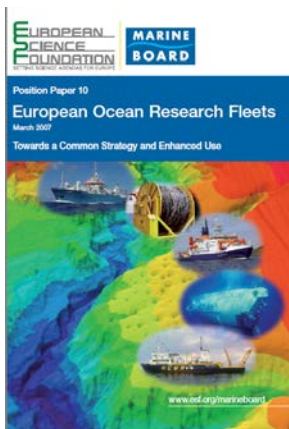
- **Chair - Per Nieuwejaar**, IMR, Norway
- **Co-chair - Valérie Mazauric**, Ifremer, France
  
- **André Cattrijsse**, VLIZ, Belgium
- **Aodhan Fitzgerald**, MI, Ireland
- **Christian Betzler**, University of Hamburg, Germany
- **Colin Day**, NOC, UK
- **Erica Koning**, NIOZ-NMF, Netherlands
- **Franco Coren**, OGS, Italy
- **Giuseppe Magnifico**, CNR, Italy
- **Jose Ignacio Diaz**, IEO, Spain
  
- **Paula Kellett**, EMB, Belgium
  
- **Juanjo Danobeitia**, EMSO, Italy
- **Lieven Naudts**, RBINS - OD Nature, Belgium
- **Mafalda Carapuço**, IMPA, Portugal
- **Michael Klages**, University of Gothenburg, Sweden
- **Olivier Lefort**, Ifremer, France
- **Øystein Mikelborg**, NPI, Norway
- **Stefan Florescu**, GeoEcoMar, Romania

- WP 1 - Research Vessels as a platform and interface for ocean technologies
- WP 2 - Deep sea
- WP 3 - Polar regions
- WP 4 - Training the next generation of marine scientists
- WP 5 - Towards an end-to-end European Ocean Observing System (EOOS)
- WP 6 - Future development of European RV fleet management and coordination
- WP 7 - Stakeholder consultation

	WP1	WP2	WP3	WP4	WP5	WP6
	<b>Research Vessels as a platform and interface for ocean technologies</b>	<b>Deep sea</b>	<b>Polar regions</b>	<b>Training the next generation of marine scientists</b>	<b>Towards an end-to-end European Ocean Observing System (EOOS)</b>	<b>Future development of European RV fleet management and coordination</b>
<b>Leader</b>	Lieven Naudts	Olivier Lefort	Oystein Mikelborg	Erica Koning	André Cattijse	Giuseppe Magnifico
<b>Members</b>	Aodhan Fitzgerald	Aodhan Fitzgerald	Franco Coren	André Cattijse	Christian Betzler	Erica Koning
	Colin Day	Christian Betzler	Juanjo Danobeitia	Aodhan Fitzgerald	Giuseppe Magnifico	Jose Ignacio Diaz
	Franco Coren	Colin Day	Michael Klages	Christian Betzler	Juanjo Danobeitia	Lieven Naudts
	Jose Ignacio Diaz	Michael Klages		Mafalda Carapuco		Olivier Lefort
	Mafalda Carapuco	Jose Ignacio Diaz				Oystein Mikelborg
	Stefan Florescu	Juanjo Danobeitia				Stefan Florescu
<b>Chair &amp; co-Chair participation</b>	Valérie Mazauric	Per W. Nieuwejaar	Per W. Nieuwejaar	Valérie Mazauric	Per W. Nieuwejaar	Valérie Mazauric

WP 7 - Stakeholder consultation (Leader: Paula Kellett (EMB) & all)

- Advancements in ocean technology, in particular autonomous systems has paved the way for a new era of ocean observation and sampling, but research vessels remain a key platform.
- RVs that can handle deployment, recovery and servicing of autonomous systems in a safe and efficient manner and RVs who can perform deep ocean surveys using multibeam echosounders, subbottom profilers, seismic systems, ROVs, AUVs and other equipment and tools at several thousands of meters depth are limited.
- Ongoing investment in RVs, together with the development and deployment of novel technologies such as sensors, probes and automated underwater vehicles, are vital for advancing ocean science. However, the high investment required for marine infrastructure is becoming more and more challenging as the costs of designing, building, operating and maintaining RVs are constantly increasing.
- Higher ship investment and running costs and the need to renew and upgrade large marine scientific equipment onboard research vessels and make RVs more environmentally friendly will almost certainly force significant changes in the size of the academic research fleet, as well as the use and scheduling of RVs.



**Task 1: Current status of the EU RV fleet (incl. progress made since 2007 and the foreseeable evolution)**

**Task 2: Current status of the EU RV capabilities (incl. progress made since 2007 and the foreseeable evolution)**

Objective: Update the EU RV list (incl. RV capabilities) based on the Eurofleets2-FEG & EurOcean databases for RVs “openly” available for research & at least operate on a regional scale.

Planning: Pre-survey send out last week & complete survey to be foreseen in July-August 2018

ERVO involvement: Please update your vessel information via the pre-survey & survey (cfr. EurOceanRID 2.0) and give input on other vessels (contact information, status, etc.) if available.

**Task 3: Current status of the EU LEXI (incl. progress made since 2007 and the foreseeable evolution)**

Objective: Update the EU LEXI list based on Eurofleets & EurOcean databases for LEXI “openly” available for research

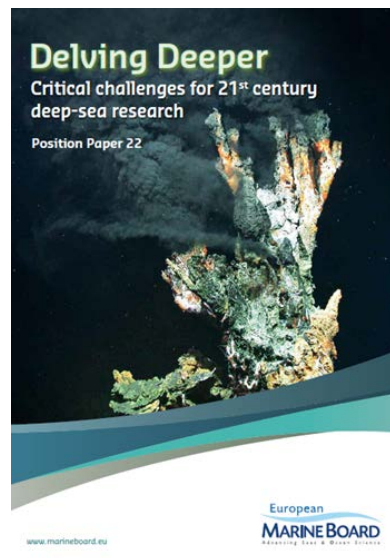
Planning: Survey to be foreseen in July-August 2018

ERVO involvement: Please update your LEXI information via the survey (cfr. RID 2.0) and give input on other LEXI (contact information, status, etc.) if available.

Country	Ship	length (m)	Should be "In" the list	?	Should be "Out" of the list	Comment	Contact person
Belgium	Belgica	50,9	1				Dr. Lieven Naudts
	Simon Stevin	36,3	1				Dre Cattrijsse
Bulgaria	Akademik	55,5	1			Still active?	Atanas Palazov
	Professor A. Vakalnov	34		1			Daniela Petrova
Croatia	BIOS DVA	36,6	1				Vlado Dadic
	Hidra	22,1	1				Vlado Dadic
	Nase More	31,35		1			University of Dubrovnik
	Navicula	10,8		1			Katja Osibov
	Palagruza	45,5			1	No research	Vlado Dadic
	Shammal	10,5		1			Andjelko Novosel
	Triton	10,8		1			Dr. Nenad Smodlaka
	Vila Velebita	25,5		1			Dr. Nenad Smodlaka
Denmark+Greenland	Aurora	28	1				Peter Grønkjær
	Dana	78,43	1				Dennis Lisbjerg
	Gunnar Thorson	56		1			Gunni Ártebjerg
	Havfisken	17,24		1			Dennis Lisbjerg
	Ophelia	15,48		1			Captain Benly Thru
	Pamiut	59		1			Helle Siegstad
	Sanna	32	1				Helle Siegstad
	AluDevil	10,3		1			Not available
Estonia	Johana	10,1		1			Not available
	Merihag	10		1			Not available
Faroe Islands	Salme	31,3	1				Urmars Lips
	Vilma	15		1			Robert Aps
	MV Fox	38			1	Owned & operated by a private company, no research	Erling i Liða
Finland	Aranda	59,2	1				Niels P. Trolle
	Geomari	20	1				Mr Juha Flinkman
France	Albert Lucas	11,5			1	Local	Jyrki Rantataro
	Alis	28,4	1				Emmanuel Alessandrini
	Antéa	36	1				Olivier Lefort



- As ocean technology advances, autonomous systems and their sensors and samplers have increased capabilities to delve deeper in the ocean than ever before. However, the deep sea remains difficult and costly to access.
- Although recent technological advances have made access to the deep ocean considerably easier, exploratory activity still requires ocean-going vessels, platforms and heavy equipment.
- A European Marine Board Position Paper on Deep-sea research, published in 2015, noted that the availability of large infrastructure (ocean-going ships) and state-of-the-art technical equipment (e.g. deep submergence vehicles) is not matching the growing requirements of the deep-sea scientific and wider stakeholder community, e.g. with respect to marine monitoring (MSFD) and blue growth.



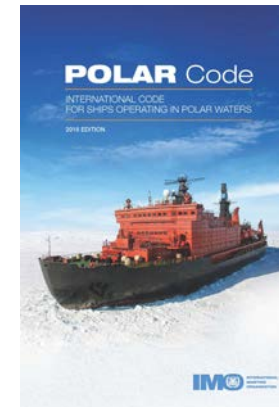
**Chapter 1. Based mainly on EMB PP 22, description of the Deep sea scientific themes**

**Chapter 2. Explanation of the scientific strategies and needed tools: facilities for a large-scale, medium-scale approach, then intervention on a small area**

**Chapter 3. Description of medium and long-term planned new systems**

**Chapter 4. Which vessels should we need?**

- The polar regions, and in particular the Arctic is being transformed by rapid environmental change and commercial exploitation. There is therefore an increasing interest, and necessity, for marine science to monitor and understand these changes to the physical environment and impact on the ecosystem.
- However, the polar regions present a number of additional challenges for research vessels and associated sampling technologies.
- The IMO Polar Code, which came into force in January 2017 sets out mandatory requirements for all shipping-related matters relating to navigating in Polar waters, including ship design, construction and equipment.
- Due to these requirements, the number of ice-going vessels is still very limited, which in turn limits the scientific cruises and research that can be done to develop understanding of these remote regions and the impacts of climate change on them.



### **Task 1: Current status of the EU Polar Research Vessel fleet (incl. progress made since 2007 and the foreseeable evolution)**

Objective: Update the EU PRV list (incl. PRV capabilities) based on the Eurofleets2-FEG & EurOcean databases for RVs “openly” available for research, taking into account the fact that the new IMO Polar Code may reduce the number of PRVs even further

Planning: Survey to be foreseen in July-August 2018

ERVO involvement: Please update your vessel information via the survey and give input on **which vessels have Polar Certificates and which have plans to acquire Polar Certificates.**

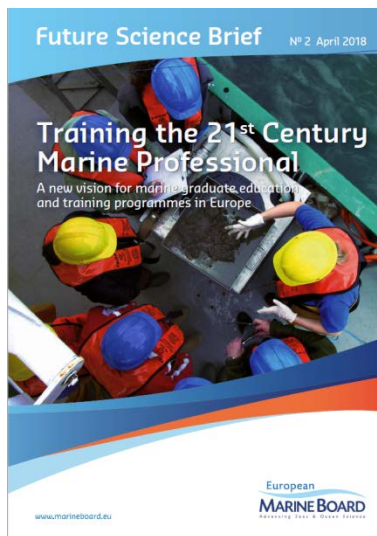
### **Task 2: Science requirements**

Objective: Identify science requirements in light of the rapid environmental changes in the polar areas.

### **Task 3 Identify gaps and recommendations to close gaps between science requirements and PRV fleet**

Objective: Identify gaps and recommend solutions, taking into account new ships coming online, new initiatives such as ARICE and so on.

- RVs offer a unique school for practical training and a multitude of transferable skills including leadership, entrepreneurship and team building.
- This opportunity for training at sea is of special importance for young people and is an area where Research Vessels can provide a unique, additional service to the marine scientific community (European Marine Board, 2013).
- Recently published EMB Future Science Brief on “Training the 21st Century Marine Professional: A new vision for marine graduate programmes in Europe” outlines the importance of this aspect in further detail.

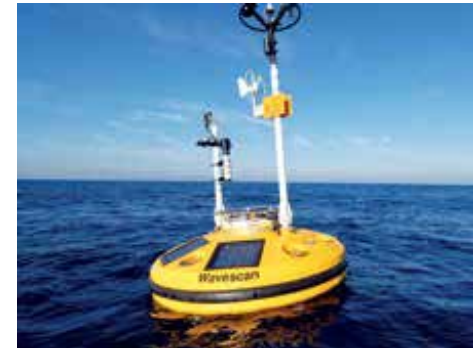


The new future science brief, titled 'Training the 21st Century Marine Professional' appears to target all marine professionals the focus is mostly on the scientists.

WP4 will therefore focus on the other groups that are essential for successful science output on cruises: marine technicians, marine crew and shore staff such as ship operators.

- During the first WG meeting we have listed areas where we see gaps, with recommendations for follow up actions.
- In the questionnaire that will be sent out to operators a section will be dedicated to WP4 information. (see WP 6)
- Will be followed up during the ERVO meeting by the attending WP4 members.

- RVs are a key infrastructure platform for ocean observation and therefore a component of the wider EOOS; the coordinating framework for inclusive end-to-end ocean observation currently being co-developed by EMB, EuroGOOS and other stakeholders.
- Ongoing developments in ocean observing and in research in key areas such as climate change that depend on these observations will increasingly rely on platforms that support them, increasing the need for comprehensive coordination.
- The use of the wider global commercial fleets as “ships of opportunity”, especially as platforms for sensors, observing and sampling, may also be an aspect of increasing interest and should be considered alongside the use of dedicated RVs.

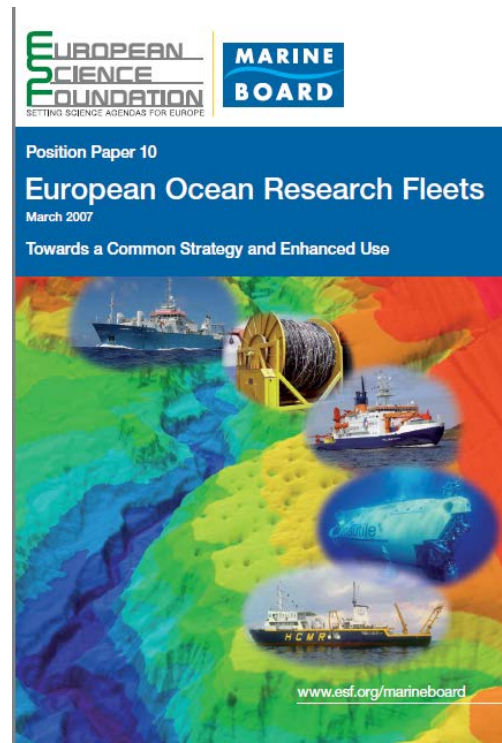


Objective: Outcry the essential importance of RVs as data providers and service support platforms for the Ocean Observation community EOOS

1. ERVO involvement: Answer to the open consultation on the EOOS strategy & implementation (this meeting).
2. WP members to attend the EOOS conference in BXL, 21-23 November 2018. A plenary presentation on this topic is not possible. The message will need to be ventilated during the plenary session and during two breakout discussion sessions.
3. On the basis of a few cases exemplify the importance of RVs and their associated equipment and expertise for the EOOS.



- Use the recommendations described EMB position paper “European Ocean Research Fleets – Towards a Common Strategy and Enhanced Use”
- Build on ERVO future
- Build on Eurofleets 2 deliverables (D4.1 and D4.2)



## **Task 1 - Desktop study of available documents**

Objective: to identify the progress made since the previous EMB Position Paper 10 in 2007

Action: to use previous recommendations to evaluate the level of fulfilment cfr. different sources of information (EMB PPs, EU project Deliverables and website documents)

## **Task 2 - Analysis of current National and European landscape and future trends/initiatives/plans towards strengthened and enhanced collaboration, access and interoperability of the European Research Fleet**

Objective: to collect up-to-date information on the present national management processes of European Research Vessels, related investment plans and partnerships

Action: to use an updated version of the questionnaire made in previous EMB PP 10 – on-line consultation to be launched after the 2018 ERVO meeting and to be closed by the end of June 2018

ERVO involvement: Please, answer to the questionnaire and promote it at national level !!!

## **Task 3 – Interactions with stakeholders and existing European/International Structures/Initiatives (in close liaison with WP7)**

Objective: to allow more discussion on relevant topics and to review the proposed recommendations

Action: to get feedbacks from RV community/providers and stakeholders/end-users (ERVO, IRSO, OFEG, EurOcean SC, EFARO and other European/International cross-cutting initiatives/networks)

### **Task 1: Survey with Research Vessel Operators - Management and Training**

Support survey for data to support work of WP 4 & 6

### **Task 2: Survey with Research Vessel Operators - Ship Particulars , RV Capabilities & LEXI**

Support survey to gather data to be updated in existing database for WP 1

### **Task 3: Stakeholder mapping**

Map key stakeholders for research vessels and their outputs, including relevant communities, networks and projects

### **Task 4: Stakeholder Consultation**

Create and manage questionnaire, distributed to key mapped stakeholders, on their needs and vision for research vessels and the future

**Launch and dissemination of new paper foreseen in  
June 2019**

