## Project information

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<tr>
<th><strong>Project full title</strong></th>
<th>EuroSea: Improving and Integrating European Ocean Observing and Forecasting Systems for Sustainable use of the Oceans</th>
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<tr>
<td><strong>Project acronym</strong></td>
<td>EuroSea</td>
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<td>862626</td>
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<td><strong>Project start date and duration</strong></td>
<td>1 November 2019, 50 months</td>
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<td><strong>Project website</strong></td>
<td><a href="https://www.eurosea.eu">https://www.eurosea.eu</a></td>
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## Deliverable information

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<tr>
<th><strong>Deliverable number</strong></th>
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<tbody>
<tr>
<td><strong>Deliverable title</strong></td>
<td>Recommendation on engaging with the next generation of stakeholders</td>
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<tr>
<td><strong>Description</strong></td>
<td>This report aims to provide insights into the lessons learnt from engaging with the next generation of stakeholders and the activities organised to foster their involvement with ocean observing, monitoring, and forecasting. By analysing and documenting the details, successes and failures of the interactions performed, this deliverable is aimed at forming an exemplary basis for future EU projects to engage the next generation.</td>
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<tr>
<td><strong>Work Package number</strong></td>
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<td><strong>Work Package title</strong></td>
<td>Communication: Engagement, Dissemination, Exploitation, and Legacy</td>
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<tr>
<td><strong>Lead beneficiary</strong></td>
<td>GEOMAR Helmholtz Centre for Ocean Research Kiel</td>
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<tr>
<td><strong>Lead authors</strong></td>
<td>Fiona-Elaine Strasser</td>
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<td><strong>Contributors</strong></td>
<td>Nicole Köstner, Dina Eparkhina, Anthony Noronha, Veronica Ortiz</td>
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<td>30.11.2023</td>
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<td><strong>Comments</strong></td>
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Table of contents

Executive Summary ........................................................................................................................................... 1

1. Introduction ............................................................................................................................................... 1
   1.1. Public engagement in the framework Horizon 2020 research and innovation – Special focus on the next generation ......................................................................................................................... 1
   1.2. Engaging the next generation of stakeholders in EuroSea ................................................................ 2
       Definitions ................................................................................................................................................. 3

2. Engagement activities for the next generation of stakeholders ............................................................... 4
   2.1 Inviting the Early Career Ocean Professionals (ECOPs) to conferences ............................................ 4
       SEA-EU Student Involvement at the EuroSea Annual Meeting 2022 ...................................................... 4
       ECOP involvement at the EuroSea Final Symposium 2023 .................................................................. 7
       Lessons learnt: ........................................................................................................................................... 8
   2.2 Engaging the next generation of stakeholders through workshops .................................................... 9
       ICYMARE 2022 ocean career job profiles workshop & EuroSea itinerant exhibition ............................ 9
       FYORD meets WASCAL - Ocean career job profiles workshop .............................................................. 12
       Lessons learnt .......................................................................................................................................... 15
   2.3 Engaging the next generation of stakeholders through training .................................................... 16
       WASCAL Floating University – pre-cruise lecture and on-board training ........................................... 16
       Lessons learnt .......................................................................................................................................... 19
   2.4 Engaging the next generation of stakeholders through ocean literacy ........................................... 19
       Ocean Observers – Support of creation and sharing of educational material ....................................... 19
       Lessons Learnt ......................................................................................................................................... 21
   2.5 Engaging the next generation of stakeholders through public events ............................................ 21
       Futurium Vision for Europe ..................................................................................................................... 21
       Lessons Learnt ......................................................................................................................................... 23
   2.6 Engaging the next generation of stakeholders through podcasts ................................................... 24
       AtlantECO podcast ................................................................................................................................... 24

Conclusion ....................................................................................................................................................... 24

References ....................................................................................................................................................... 25

Annex I – Surveys ............................................................................................................................................. 26

Annex II – Survey results .................................................................................................................................. 35
Executive Summary

This report provides an overview of EuroSea's initiatives focused on engaging the next generation of ocean observing and forecasting stakeholders. Many activities took place, including delivering workshops, presenting the EuroSea itinerant exhibition, collaborating with the WASCAL Floating University and the SEA-EU inter-university initiative, supporting the international Ocean Observers Initiative, and much more.

Engaging the next generation of stakeholders in meaningful discussions and innovative projects is essential to ensure future-oriented intergenerational collaboration. Yet, this is often an overlooked aspect of public engagement within the Horizon 2020 landscape as it requires engagement techniques specifically tailored to reach the young generation. Within the framework of Horizon 2020, the European Union's research and innovation funding program, public engagement traditionally targets a diverse range of stakeholders, including researchers, policymakers, industry representatives, civil society organizations, NGOs, and citizens. While these efforts are crucial for fostering inclusive and transparent dialogue, targeted initiatives directed towards the younger generation and early-career ocean professionals need to be expanded. It is important to recognize the concerns, unique perspectives, and aspirations of young individuals who will inherit the outcomes of today's research and innovation. Dedicating resources to engage with the next generation is vital to ensure their active involvement in shaping their future and addressing global challenges such as the sustainability of ocean observing, monitoring, and forecasting.

EuroSea has recognized the importance of fostering a deeper understanding of ocean observing and forecasting among the younger generation. This deliverable and the many activities feeding into it are a testament to EuroSea's commitment to this cause.

This report focuses on the lessons learnt from a diverse array of activities engaging the next generation of ocean observing and forecasting stakeholders, demonstrating the extensive range of possibilities for involving the younger generation. It underscores the importance of tailoring approaches to different age groups, from school children to university graduates and adapting engagement strategies to their varying interests and life stages. Every experience—even the ones that did not turn out as expected—has shown to be beneficial, and it is important to share lessons learnt and identify best practices while expanding these kinds of initiatives.

EuroSea's dedication to engaging the next generation of stakeholders is a significant step in fostering intergenerational dialogue and promoting blue skills and knowledge sharing. Valuable lessons have been learnt from the EuroSea engagement activities and provide guidance for future initiatives aimed at fostering a deeper understanding of our ocean among the younger generation and engaging them in conversations that impact their future on this planet.

1. Introduction

1.1. Public engagement in the framework Horizon 2020 research and innovation – Special focus on the next generation

Public engagement holds a central role within Horizon 2020, the European Union's research, and innovation funding program. This program places a strong emphasis on fostering a two-way dialogue between researchers and society, intending to ensure that research and innovation align with societal needs and values. It encompasses participatory multi-actor dialogues and exchanges that facilitate mutual
understanding, co-creation of research and innovation outcomes, and input into policy agendas. It brings together diverse stakeholders, including researchers, policymakers, industry representatives, civil society organizations, NGOs, and citizens, for deliberation on matters of science and technology. Public engagement serves as a channel for exploring ethical and value-laden issues, promoting inclusivity, transparency, diversity, and creativity in the research and innovation process (European Commission 2015).

However, within the broader scope of public engagement, it is increasingly recognized that dedicating specific efforts to engage the next generation and early career ocean professionals is paramount (Rask, Matschoss, and Kaarakainen 2016). This targeted approach acknowledges the unique perspectives, needs, and aspirations of younger individuals and seeks to provide them with tailored information and opportunities for engagement. Here are several key reasons why such focused engagement is crucial:

- **Tailored information**: Different age groups, from school children to university graduates, have distinct interests, concerns, and priorities. Providing age-appropriate and relevant information ensures effective communication and engagement.

- **Building a knowledge base**: Engaging the next generation early on fosters a deeper understanding of ocean observing, monitoring and forecasting. This knowledge forms the foundation for informed decision-making and active participation in discussions about the future of our planet.

- **Inspiring future leaders**: By involving young minds in ocean-related activities, we inspire and empower future leaders in the field. Encouraging their interest and participation can lead to a new generation of ocean professionals committed to sustainable practices.

- **Diverse perspectives**: Younger individuals often bring fresh perspectives and innovative ideas to the table. The inclusion of these perspectives enriches discussions, leading to more comprehensive and effective solutions for ocean-related challenges.

- **Societal engagement**: Educating and engaging the next generation in ocean observing and forecasting contributes to a more scientifically literate society. It equips citizens to participate in democratic processes, support evidence-based policymaking, and make informed decisions regarding research and innovation financing.

While public engagement remains a crucial aspect of Horizon 2020, EuroSea recognizes the significance of dedicating specific efforts to engage the next generation and early career ocean professionals. This targeted approach not only aligns with the broader goals of public engagement but also ensures that younger individuals are well-informed, inspired, and actively involved in shaping the future of ocean observing and forecasting.

### 1.2. Engaging the next generation of stakeholders in EuroSea

In the context of EuroSea, engaging the next generation of stakeholders is a complex task embedded within the project’s overarching communication strategy. This strategy, outlined in the EuroSea Communication Plan¹, recognizes that engaging the next generation presents a unique challenge and opportunity. Here’s how this special case of engagement is defined within the communication plan:

Engaging the next generation of stakeholders within the EuroSea framework is a distinctive form of public engagement. It encompasses two distinct but interconnected groups:

1. **Youth**: Young individuals who may have little to no prior knowledge of ocean observing and forecasting. Engaging with them requires the development of accessible and engaging content to introduce them to these critical topics and inspire interest.

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¹ [https://doi.org/10.3289/eurosea_d8.1](https://doi.org/10.3289/eurosea_d8.1)
2. **Young researchers and ocean scientists:** Early career researchers (ECRs) and early career ocean professionals (ECOPs) who possess a deeper understanding of the subject matter. They are the future leaders in the field, and their involvement is essential for the sustainability of ocean observing and forecasting.

The provided information about EuroSea's objectives and vision contributes valuable context and background to understanding why engaging the next generation is imperative:

- **Sustainability and vision:** EuroSea’s overarching objective is a sustainable ocean observing system. The next generation is central to this, as they will drive and uphold this vision with fresh perspectives and environmental consciousness.
- **Interdisciplinary and innovative approach:** EuroSea combines a user-focused interdisciplinary strategy with a commitment to innovation. Engaging the youth brings diverse skills, fresh viewpoints, and new solutions which are essential for this mission.
- **Ocean-Human connectivity:** Recognizing the significance of ocean-human interactions, EuroSea sees the globally connected next generation as vital players in understanding and enhancing these relationships.
- **Inclusive engagement and global collaboration:** EuroSea’s aim for broad engagement and global context prioritizes the involvement of the next generation, recognizing their key role in shaping the future and advocating for global sustainability.

Engaging the next generation of ocean observing and forecasting stakeholders is both a challenge and an opportunity. This involves reaching out to audiences with a different degree of knowledge and understanding of ocean observing activities (children and high school students without any prior knowledge, as well as early-career researchers and scientists). The context and objectives of this work, provided below, highlight why this engagement is crucial for the project's success and the long-term sustainability of ocean observing and forecasting.

**Definitions**

**Engaging the next generation of stakeholders:**
EuroSea defines “engaging the next generation of stakeholders” as actively involving and inspiring young individuals from different age groups such as school children, students, and early-career professionals, in the project’s activities, objectives, and the broader field of ocean observing and forecasting. This engagement aims to cultivate their interest, knowledge, and passion for ocean science and sustainable ocean observing. By connecting with the next generation, EuroSea seeks to engage future scientists, policymakers, industry experts, and advocates who are committed to advancing ocean observing, addressing its challenges, and promoting its significance for the well-being of society and the environment. This engagement strategy contributes to building a sustainable and knowledgeable workforce that can continue to drive innovations and advancements in ocean observing systems and practices.

**The next generation of stakeholders:**
EuroSea defines “the next generation of stakeholders” as the up-and-coming professionals, school children, students, and early-career individuals, who may or may not be involved with science but still have an interest in and will be impacted by the future of ocean observing, monitoring, and forecasting. These stakeholders represent diverse sectors and backgrounds, and their involvement ensures that the momentum and legacy of the EuroSea project continues into the future.
Lesson learnt term:
In the context of this report, "lessons learnt" refers to the knowledge and understanding acquired through a comprehensive review and assessment of the EuroSea project's activities which aimed to engage the next generation of stakeholders. This involves a review of the process and outcomes of each activity supported by survey results of the participants to determine what was successful and what could be improved. The objective is to summarize these experiences into actionable knowledge that can enhance the efficiency and impact of similar initiatives going forward.

Lessons learnt should draw on both positive and negative experiences:
- good ideas that improve project efficiency or engagement
- lessons learnt after negative feedback or an undesirable outcome has occurred

2. Engagement activities for the next generation of stakeholders

On the journey to shape the future of sustainable ocean observing and forecasting, it's imperative to involve those who will be at its forefront in the future – the next generation of stakeholders. In this deliverable, a range of engagement activities were implemented to determine effective methods for involving the next generation and to gather key lessons. Each approach offered its own distinct experiences and insights. In the following sections, the specifics of each activity will be detailed, highlighting both the methodology and clear takeaways.

2.1 Inviting the Early Career Ocean Professionals (ECOPs) to conferences

SEA-EU Student Involvement at the EuroSea Annual Meeting 2022

During the EuroSea Annual Meeting 2022 in Cádiz, Spain, an initiative was undertaken to involve students from the SEA-EU² network to enhance stakeholder engagement. A crucial aspect of EuroSea’s mission involves engaging and fostering the next generation of marine scientists and professionals. Hence, involving SEA-EU students in this meeting served a dual purpose. Firstly, it provided an opportunity for students to gain first-hand experience, establish professional relationships with EuroSea scientists, and actively participate in discussions. Secondly, it ensured that the perspectives and expertise of the next generation, who are professionals themselves, were included in important discussions. This promotes a holistic approach in fostering a sustainable ocean observing, monitoring, and forecasting system.

Selection Process:
An open call was disseminated through the SEA-EU network, encouraging students and recent graduates from varied scientific backgrounds to apply for an opportunity to participate in the annual EuroSea project meeting. The open call, dispatched via email in March 2022, spanned a 10-day application period. Key details of the event, the activities the students would be involved in, and applicant requirements were outlined. Interested students were encouraged to apply through the application form (Google Forms) which was designed to capture essential personal details about the applicants, including basic information such as name, email address, city of residence, academic background, and the motivation of the applicants for participating in the event.

² https://sea-eu.org/home/
Participant Demographics:
From the 14 applications received, 11 candidates were chosen based on their research field and its alignment with the conference content, their motivational statements, and, to ensure a diverse representation, across different academic stages: PhD, master's, and undergraduate students. The accepted applicants came from five different countries and associated universities: Cádiz (Spain), Germany, Poland, Croatia, and Malta.

Engagement Activities:
The students' involvement was segmented into several key areas:

Poster Presentation: The selected students were given a slot for a dedicated poster session, where they presented on topics of their current research focus. This setting enabled them to promote their research while having a chance to network and interact with members of the EuroSea community.

Workshop Participation: Each student actively participated in 2-4 of the 12 workshops. These sessions ranged from topics such as 'Ocean Integration' and 'Sustainability of the Ocean Observation System' to discussions centred around the 'EuroSea Impact and Legacy' and the broader UN Decade of Ocean Science for sustainable development.

Project Meetings: The students were introduced to EuroSea, by attending various project sessions. This included presentations on individual work packages, panel discussions, and the General Assembly of EuroSea, which offered a comprehensive overview of the project's trajectory and key initiatives. This participation allowed students to gain a holistic understanding of the operational details and collaborative efforts within EuroSea for a sustainable European Ocean Observing System.

Networking Dinner: At the end of the Annual Meeting a dinner was organised, granting students an additional opportunity to engage with EuroSea members and stakeholders in a more private setting.
Through these efforts, the initiative sought to connect experienced experts with emerging professionals in ocean sciences. This provided the newer generation with valuable insights, chances to network, and a space to share their perspectives.

**Table 1. Title and lead organisations of the workshops with SEA-EU student engagement.**

<table>
<thead>
<tr>
<th>Workshop Title</th>
<th>Lead by:</th>
</tr>
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<tbody>
<tr>
<td>Ocean integration: how to improve coordination between research activities, platforms and networks?</td>
<td>SOCIB, Balearic Islands Coastal Observing and Forecasting System and IFREMER, Institut français de recherche pour l’exploitation de la mer</td>
</tr>
<tr>
<td>Moving forward with EuroSea Best Practices</td>
<td>IEEE France Section and IOC/UNESCO, United Nations Educational, Scientific and Cultural Organisation</td>
</tr>
<tr>
<td>EuroSea impact and legacy</td>
<td>EuroGOOS and Marine Institute</td>
</tr>
<tr>
<td>Sustainability of the Ocean observation system: how to get there?</td>
<td>European Marine Board IVZW</td>
</tr>
<tr>
<td>Towards Network Governance common ground: Can we improve internal operations for maximal impact on the outside world?</td>
<td>GEOMAR Helmholtz Centre for Ocean Research Kiel and HCMR, Hellenic Centre for Marine Research</td>
</tr>
<tr>
<td>Demonstrator learnings – Ocean Health</td>
<td>XYLEM, Xylem Aanderaa Data Instruments AS</td>
</tr>
<tr>
<td>Ocean indicators within EuroSea</td>
<td>MOI, Mercator Ocean International and TalTech, Tallinna Tehnikaulikool</td>
</tr>
<tr>
<td>Q&amp;A session on possible improvements for the international &amp; regional regulation of ocean observing</td>
<td>GEOMAR Helmholtz Centre for Ocean Research Kiel</td>
</tr>
<tr>
<td>Assessing the impact of EuroSea coordination on the visibility of and access to data and information</td>
<td>HCMR, Hellenic Centre for Marine Research and GEOMAR Helmholtz Centre for Ocean Research Kiel</td>
</tr>
<tr>
<td>Marine Heat Wave task force</td>
<td>ENS, École normale supérieure</td>
</tr>
<tr>
<td>OSPAC &amp; Sea level visualization tool (demonstration)</td>
<td>NOC, National Oceanography Centre, EPPE, Puertos del Estado, and ARUP, Ove Arup &amp; Partners International Limited</td>
</tr>
<tr>
<td>Interaction between EuroSea and the UN Decade of Ocean Science for Sustainable Development</td>
<td>UNIBO, Alma Mater Studiorum – Università di Bologna</td>
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</table>

**Evaluation of the activity**

The success of the SEA-EU activity was evaluated using an online survey created via Google Forms – “SEA-EU Student Survey EuroSea Annual Meeting 2022” (complete survey is available in Annex I) and was shared with the students via email to ensure a high response rate. The survey was designed with a series of single and multiple-choice closed-ended questions. This format not only shortened the completion time to approximately 5 minutes but also simplified the statistical analysis, making it easier to effectively draw conclusions from the gathered responses. The survey aimed to gather feedback on various aspects of the activity including the organization, coordination, engagement, and personal outcomes and consisted of a total of 19 questions as well as one open-ended question to give suggestions or general comments. Participants' responses were anonymous, promoting honest and unbiased feedback.

Below is a concise overview of the activity’s evaluation (Full data can be found in Annex II):

**Event Organization & Coordination:** The majority found the general organization good to outstanding (63,7%). Coordination of SEA-EU students during the event was positively viewed by 81,9%.

**Poster Session:** Most (63,7%) thought their posters received adequate attention, and 72,7% established professional relationships during the session. Presentations were the preferred method for showcasing
research (45.5%), followed closely by poster sessions (36.4%). Combining the icebreaker with the poster session was appreciated by 63.7% of participants.

**Workshop Engagement:** Feedback on posters was received by 63.6% of attendees. However, only 45.5% established professional relationships during the workshops.

**Post-Event Reflections:** 27.3% showed increased interest in ocean observing and monitoring after the event and 100% would recommend the experience to peers.

One-on-one video interviews were carried out with SEA-EU students to capture their excitement and energy concerning the poster session and interactions with the EuroSea community. Additionally, these interviews sought feedback on whether such engagements are generally considered beneficial for early-career ocean professionals and their careers. This data was primarily taken for social media purposes and disregarded in the evaluation as it is more likely to be biased by direct, personal engagement compared to the anonymous survey responses.

**ECOP involvement at the EuroSea Final Symposium 2023**

Another significant engagement activity involving the next generation of stakeholders within the context of conferences took place at the high-level EuroSea Symposium on Ocean Observing and Forecasting, hosted at the IOC/UNESCO headquarters in Paris, in September 2023. Representing the voice of ECOPs, I (Fiona-Elaine Straßer, Early Career Ocean Professional at GEOMAR and EuroSea WP8 member) was invited to provide a short statement in the session on „Perspectives on National and International Ocean Observing & Forecasting for sustainable use of the ocean in Europe and the world“. The statement underscored the following points:

**The tech-driven perspective of the next generation:** The unique position and potential of the current young generation as digital natives, with their tech-driven upbringing reshaping oceanic studies and their approach to problem-solving.

**The sense of urgency:** While the young generation is excited by the technological possibilities and the interconnectedness of the modern era, they also bear the pressing weight of current environmental challenges and worry deeply about the future of the ocean.
The more need for intergenerational collaboration: The potential of the young generation to bring fresh ideas and perspectives. By engaging more young people in the dialogue and fostering collaborations across generations, the combined knowledge and innovation can address the challenges faced by the ocean more effectively.

The symposium brought together national and international stakeholders from various diverse sectors, including policy, science, and industry, discussing the future of ocean observing and forecasting for the sustainable use of the ocean in Europe and the world. My inclusion in this session proves the project's commitment to fostering intergenerational dialogues. The experience was deeply rewarding as it highlights the progress of integrating younger voices in future-focused discussions while acknowledging the expertise and vital contribution of the next generation in shaping ocean observing and forecasting.

Lessons learnt:

**Lessons learnt from involving the next generation in conferences:**

**SEA-EU student involvement at the EuroSea Annual Meeting**

- Efficient organization and coordination play crucial roles in successful event execution.
- Presentations were preferred over poster sessions. Future events might consider allocating more time to presentations or interactive sessions for enhanced engagement.
- Combining the icebreaker and poster sessions received mixed feedback, indicating a potential need to separate sessions or better defined objectives of each session.
- Workshop engagement requires attention, as some students felt overlooked or lacked constructive feedback. Promoting smaller discussion groups or encouraging workshop leaders to connect with students before the workshop to discuss expectations from both sides and enhance networking between the two parties could be beneficial.
- While the event influenced the career paths of some participants and the overall success of this activity was evident, understanding the specific needs or expectations of the students beforehand could provide a more efficient experience.

**Early Career Ocean Professional (ECOP) Involvement at the EuroSea Final Symposium 2023**

- Inviting ECOPs to high-level events to give statements boosts personal motivation and fosters a feeling of progress. Additionally, it showcases the great potential and sense of responsibility of the next generation, emphasizing the value of intergenerational dialogue.
2.2 Engaging the next generation of stakeholders through workshops

ICYMARE 2022 ocean career job profiles workshop & EuroSea itinerant exhibition

During the International Conference for Young Marine Researchers (ICYMARE³) in Bremerhaven, Germany, on the 14th and 15th of September 2022, EuroSea showcased its itinerant exhibition and organised a workshop titled "Connecting Early Career Ocean Professionals with Ocean Observing and Forecasting – EuroSea." A fundamental aspect of EuroSea's mission is to engage and cultivate relationships with the upcoming generation of marine scientists and professionals. Given ICYMARE's emphasis on young researchers, the conference was a perfect event to connect with emerging marine experts. By displaying the EuroSea itinerant exhibition and facilitating the workshop, EuroSea not only introduced attendees to the vital topics of ocean observing, monitoring, and forecasting, but also informed about the project itself, and showcased diverse ocean career paths within its network, thereby spreading awareness and inspiring the young generation of ocean professionals.

EuroSea itinerant exhibition details

The EuroSea itinerant exhibition⁴, originally designed for the general public, provided an immersive walkthrough experience with twelve cardboard panels, each measuring 2 by 1 meters. These panels showcased text and graphics, offering detailed information about ocean observing, forecasting, and monitoring and an inbuilt tablet that played the official EuroSea video, as well as an interactive photo booth. The exhibition highlighted EuroSea's contribution to integrating the European ocean observing and forecasting system.

Job profiles: “Exploring the diversity of ocean careers: From research to outreach and beyond.”

In the marine sciences and oceanography, early-career professionals, especially post-higher education, often encounter challenges in navigating the complex job market and identifying the most suitable career path for themselves. Drawing from personal experiences and conversations with fellow young professionals, many feel lost after completing their studies, thinking that the marine sciences field is largely composed of research jobs. This misconception not only reduces the enthusiasm of emerging ocean professionals but also

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³ https://www.icymare.com/
unintentionally pushes them away from the field. To reshape this narrative, but also to guide and engage the
next generation, a series of job profiles was created targeting the "next generation of stakeholders" - an
expansive term not limited to marine scientists but including individuals from diverse educational
backgrounds.

These profiles were created based on online interviews conducted with nine professionals connected to
EuroSea, providing real-life insights. They represented a spectrum of roles, carefully selected to ensure
maximal diversity. The questions for these interviews, ranging from the nature of their daily work, their work
environment preferences, to recommendations for the next generation, were designed to provide a holistic
view of each profile and provide some personal recommendations. This approach attempted to explain the
different roles that are involved in ocean observing and forecasting, while also providing a clear picture of
possible career paths to inspire young people.

The design of the job profiles prioritized simplicity and clarity, enabling readers to quickly grasp the essentials of
each role. The overarching goal was to serve as an inspiration for individuals at various stages of their
career, from school children to university students, guiding them through the numerous possibilities in
marine sciences beyond research roles.

Alongside the EuroSea itinerant exhibition at the ICYMARE conference, these 9 laminated job profiles
were displayed. Distributed via the EuroSea website and showcased at workshops during different events, these
job profiles received overwhelmingly positive feedback. They are not just static pieces of information but are
envisioned to be dynamic tools, with ongoing discussions about incorporating them into a portfolio for University
of Kiel students. Through this initiative, EuroSea is not only informing and inspiring young professionals in their
choices but also ensuring a sustained and enriched future for ocean observing and forecasting in Europe.

Workshop details
Building on the interactions from the EuroSea exhibition the day before, a targeted workshop titled
"Connecting Early Career Ocean Professionals with Ocean Observing and Forecasting – EuroSea" was
conducted, on 15th September. The workshop’s description highlighted EuroSea’s role as an EU Innovation
Action and its commitment to advancing the sustainability of European ocean observing and forecasting
systems. The workshop aimed to engage young marine professionals with the central themes of ocean
observing, monitoring, and forecasting while offering insights into potential career paths within this sector.
After a short introduction to the EuroSea project, participants were presented with the job profiles:
“Exploring the diversity ocean careers: From research to outreach and beyond.” showcasing various career
paths found within the EuroSea network. This sparked enriching discussions among attendees, sharing their
experiences, goals, and the challenges associated with navigating the marine profession landscape. The
workshop, designed for up to 15 participants, successfully drew in 12 enthusiastic students, underscoring the

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interest of the next generation of ocean professionals as well as the effectiveness of this engagement initiative.

**Evaluation of the workshop**

The effectiveness of EuroSea’s engagement initiatives during the International Conference for Young Marine Researchers (ICYMARE) 2022 was evaluated through a post-event survey (complete survey available in Annex I) and was shared with the students via email. To ensure a high response rate, participants were encouraged to complete this survey to obtain the PDF catalogue with the discussed job profiles. The survey was designed with a series of single and multiple-choice closed-ended questions. This format not only shortened the completion time to approximately 5 minutes but also simplified the statistical analysis, making it easier to effectively draw conclusions from the gathered responses. The survey aimed to gather feedback on various aspects of the workshop including participants’ background, career inspiration, and EuroSea awareness. It consisted of a total of 18 questions as well as one open-ended question to give suggestions or general comments. Participants' responses were anonymous, promoting honest and unbiased feedback.

Below is a concise overview of the activity's insights and evaluation (Full data can be found in Annex II):

**Participants background:** The majority (58.3%) of the participants were between the ages of 26-35, with a predominant educational background of master’s degrees (58.3%). Among the attendees, 41.7% were PhD students or postdocs, while 25% were simultaneously engaged as workers and students.

**EuroSea workshop feedback:** The satisfaction levels with the EuroSea workshop were generally positive, with 58.3% rating their experience as very satisfied to satisfied. Importantly, 83.3% acknowledged the value of showcasing job profiles to Early Career Researchers (ECRs).

**Career inspiration:** One-third (33.3%) felt inspired about potential job roles in ocean observing, monitoring, and forecasting, and 66.7% considered pursuing a career in this domain post-attendance.

**EuroSea awareness:** Before the activity, none of the participants were familiar with the EuroSea project. Still, after the event, a significant 91.7% found the project intriguing, with the same percentage having prior knowledge about ocean observing, monitoring, and forecasting.

**Event recommendation:** 75% would recommend this experience to peers and half of the respondents prefer on-site activities, indicating the appeal of in-person events.

**Additional feedback:** One attendee shared constructive feedback, hoping for an interactive discourse on EuroSea’s role in ocean monitoring. They also expressed a desire for the professionals featured in the job profiles to be present for direct interactions in the future. Despite this, the event facilitator, Fiona, was praised for her positive and reassuring demeanour, which enriched the overall experience.
FYORD meets WASCAL - Ocean career job profiles workshop

At the "FYORD meets WASCAL" event in Kiel, Germany on the 13th of April 2023 a gathering took place between the students of the FYORD program - Foster Young Ocean Researcher Development - and students of the "West African Science Service Centre on Climate Change and Adapted Land Use" (WASCAL) master’s program. The event was anchored in the collaborative efforts of the Christian-Albrechts-Universität zu Kiel (CAU) in partnership with the GEOMAR Helmholtz-Center for Ocean Research Kiel, which aimed to foster the growth and development of young marine researchers during their Master's, PhD, and Postdoc phases. Taking place just after the WASCAL Floating University, a 2-week research expedition from Mindelo, Cape Verde to Bremerhaven, Germany, the event provided an excellent platform for approximately 30 students with diverse international backgrounds to engage in intercultural and scientific exchange. Through the unique workshop structure, which incorporated the rotation of smaller groups of students among various "stations":

- Diverse ocean career profiles (organised and implemented by EuroSea) in data and project management, to education and politics.
- Discussions on marine environmental challenges/Future marine research foci
- Capacity needs - where are the bottlenecks.

The ocean career profiles “station” was organised and implemented by EuroSea. For each rotation, there were around 20 minutes before the groups would move to the next “station”. After a short introduction to the EuroSea project, participants were presented with 9 job profiles showcasing various career paths found within the EuroSea network (Job profiles: “Exploring the diversity ocean careers: From research to outreach and beyond.”). This sparked enriching discussions among attendees, sharing their experiences, goals, and the challenges associated with navigating the marine profession landscape.

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6 https://www.uni-kiel.de/de/fyord
7 https://www.uni-kiel.de/de/
Evaluation of the workshop

The effectiveness of EuroSea’s engagement activity during the “FYORD meets WASCAL” event in April 2023 was evaluated through a post-event survey (complete survey available in Annex I) and was shared with the students via email. To ensure a high response rate, participants were encouraged to complete this survey to obtain the PDF catalogue with the discussed job profiles. The survey was designed with a series of single and multiple-choice closed-ended questions. This format not only shortened the completion time to approximately 5-7 minutes but also simplified the statistical analysis, making it easier to effectively draw conclusions from the gathered responses. The survey aimed to gather feedback on various aspects of the workshop including participants’ background as well as EuroSea and ocean observing and forecasting awareness. It consisted of a total of 17 questions as well as one open-ended question to give suggestions or general comments. Some multiple-choice closed-ended questions were supplemented by a section to explain a specific choice in more detail. A total of 16 answers were received. Participants’ responses were anonymous, promoting honest and unbiased feedback.

Below is a concise overview of the activity's insights and evaluation (Full data can be found in Annex II):

Participants background:
- **Age distribution:** 50% were aged between 16-25, 43,8% were between the ages of 26-35, and 6,3% were in the 36-45 age group.
- **Educational background:** Half of the respondents (50%) had completed a master’s degree, 43,8% had a bachelor’s degree, and 6,3% had secondary school education.
- **Employment situation:** A majority of 56,3% were students, 25% were students actively seeking employment, and 18,5% juggled both work and studies.

EuroSea Job profiles workshop feedback:
- **Overall satisfaction:** A significant 56,3% of the participants rated their experience with the workshop as the highest (5), with 37,5% rating it a 4 out of 5.
- **Career relevance:** All participants (100%) believed that showcasing job profiles is valuable for Early Career Ocean Professionals.
- **Job interest post-workshop:** 93,8% of the attendees expressed increased interest in pursuing a career in ocean observing, monitoring, and forecasting after learning about the job profiles.

Awareness and Prior Experience:
- **Prior familiarity:** 81,3% of the participants were already familiar with the term "ocean observing" before the workshop.
- **Prior engagement:** 62,5% had previously participated in related activities, citing experiences like work at GEOMAR, marine data courses, and participation in cruises.

Future Engagement and Recommendations:
- **Post-workshop interest:** 56,3% rated their increased interest in the topic of ocean observing, monitoring, and forecasting as the highest (5).
- **Event recommendation:** All participants (100%) would recommend this experience to their peers.
- **Preferred engagement format:** Half of the respondents (50%) prefer on-site activities, underlining the appeal of in-person events.

Additional Feedback:
Several participants expressed a desire for a more in-depth exploration of the job profiles and recommended the inclusion of professionals from the showcased job profiles for direct interactions. Feedback highlighted the importance of both on-site and virtual formats, with a focus on expanding opportunities, especially in regions like Africa.

Figure 9. The survey results regarding the attendees’ interest in ocean observing, monitoring, and forecasting after attending the workshop.
Lessons learnt

Lessons learnt - Workshops:

• **Know your audience**: In order to engage ECOPs (BSc, MSc and PhD) with ocean observing and monitoring, understanding participant’s challenges and needs is crucial to develop and plan a workshop which provides helpful and engaging content.

• **Value of showcasing job profiles**: The challenges of ECOPs entering the marine profession landscape were understood beforehand and a job profile catalogue was created to help inspire and inform about different career paths. It showed to be of great value to the attending ECOPs, as evidenced by the positive feedback.

• **Incentivization is key - Survey**: Using closed-ended questions with a mix of single and multiple-choice options makes the survey quick to complete and eases data analysis. Providing participants with tangible benefits, like a PDF catalogue, can significantly boost survey response rates.

• **Interest and awareness boost**: Workshops can be potential tools to increase awareness about niche projects. Here, from zero knowledge about EuroSea, post-event, a majority found the project intriguing. Moreover, after attending the workshop, a significant majority of participants expressed an increased interest in ocean observing, monitoring, and forecasting.

• **Inclusivity**: It’s important to ensure that opportunities and content are tailored to all society levels, especially those with limited resources, is vital for a holistic and effective outreach.

• **Physical presence**: Despite the evolving virtual trend, in-person events hold significant appeal, as half the respondents preferred on-site activities.

• **Direct Interaction**: Future workshops could benefit from having professionals (from showcased job profiles) available for interactions, making sessions more dynamic and engaging.

• **Presenter’s role**: In a workshop setting where it is aimed to understand the challenges and needs of ECOPs, it is important to create an open space and safe environment for attendees to share their opinion and experiences. The attitude and effectiveness of the facilitator of the workshop play a crucial role in enhancing the overall participant experience.
2.3 Engaging the next generation of stakeholders through training

WASCAL Floating University – pre-cruise lecture and on-board training

In March 2023, the 3rd WASCAL Floating University embarked on a two-week research cruise aboard the German Research Vessel Polarstern, setting sail from Mindelo, Cape Verde to Bremerhaven, Germany. WASCAL, which stands for West African Science Service Centre on Climate Change and Adapted Land Use, is an international master’s program focused on addressing pressing environmental challenges in the West African region. The journey on the Floating University was particularly transformative for the 11 WASCAL students representing nine different West African nations. A crucial aspect of EuroSea’s mission involves engaging the next generation of marine scientists and professionals while fostering a united global community of ocean experts which should also reach beyond Europe. Hence, EuroSea's participation in the WASCAL Floating University served two purposes:

- **Holistic education:** By joining the WASCAL Floating University, EuroSea had the chance to help provide a holistic, real-world educational experience to the participants through a combination of pre-cruise lectures and onboard training. They delved into the theoretical aspects of the ocean observing value chain, gained practical hands-on insights into the collection of ocean observing data at sea, and improved their skills in science communication techniques.

- **Strengthening network and collaborations:** The collaboration enabled EuroSea to establish stronger ties with young researchers and educators from West African nations. This enhances EuroSea's network, fostering international collaborations and ensuring diverse perspectives in ocean observing and forecasting. Moreover, it allowed for the establishment of meaningful, personal connections on a private, human level, which are vital for building lasting collaborations.

The WASCAL Floating University research cruise PS135/2 was organised into five distinct modules, with small groups of 2-3 students rotating from one module to the next every two days. Onboard activities encompassed continuous data collection, daily stations, deployment and recovery of autonomous instruments, and station work at long-term multidisciplinary time-series sites off Cabo Verde and the Canary Islands. This holistic approach allowed students to actively contribute to current research efforts and global ocean observing programs while preparing them for future master’s thesis projects and promoting sustainability in ocean observing, monitoring, and forecasting.

The modules offered students a well-rounded experience encompassing various aspects of marine research and education. These included:

**Module 1 - Oceanography** focused on hydrographic measurements, studying physical transport processes, and using equipment like CTD rosette samplers and Acoustic Doppler Current Profilers.

**Module 2 - Biogeochemistry** focussed on assessing biogeochemical changes, including measurements of temperature, salinity, CO2 partial pressure, O2 partial pressure, and more using the CTD rosette system and Winkler titration for dissolved oxygen analysis.

**Module 3 - Marine Ecology** aimed to characterize pelagic ecosystems and local communities by estimating zooplankton biomass, conducting vertical distribution studies, using profiling cameras and a Hydrobios Multinet Midi.

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8[https://wascal.org/](https://wascal.org/)
**Module 4 - Microbiology** explored marine microorganisms’ diversity and their role in biogeochemical cycles through seawater filtering and nucleic acid sequencing.

**Module 5 - Science Communication** taught students effective ways to communicate ocean science to different audiences through storytelling. The students planned, filmed and cut short videos of each station of the research modules.

**Pre-cruise lecture and preparation for on-board training**
To prepare the WASCAL students for their research cruise aboard the RV Polarstern, EuroSea gave an essential pre-cruise lecture at the Ocean Science Center Mindelo (OSCM) in Cape Verde. This lecture aimed to educate and inform the students about the ocean observing value chain while explaining how research cruises in general and the data collected on board feed into the big picture of ocean observing and forecasting. Additionally, the lecture introduced the core objectives and initiatives of EuroSea, offering students a comprehensive understanding of the project.

Secondly, the importance of documenting and communicating scientific activities to various audiences was emphasized during a second session. In collaboration with the Christian-Albrecht University Kiel (CAU), an onboard science communication module (Module 5) was designed. To prepare for the training and activities on board an exercise/lecture was provided beforehand, detailing the training’s objectives, and highlighting the significance of effective science communication. Students were then divided into groups of 2-3 and encouraged to think about storylines for their project and prepare storyboards. This exercise enabled students to initiate their storytelling processes and determine what messages they intended to convey through their module deliverable before embarking on the research cruise.

**Onboard hands-on science communication training**
EuroSea, in close collaboration with the University of Kiel, played a significant role in enhancing the teaching experience during the cruise by providing hands-on science communication training (Module 5). Through an innovative approach, students took on the role of scientific observers, documenting ongoing scientific activities on the RV Polarstern. Throughout each rotation, EuroSea co-led the science communications module, empowering students to decide on the format and content of their specific scientific modules, from selecting interviewees to content curation. Documenting ongoing data collection activities, the students took responsibility for their own storyline while learning how to use professional camera equipment. After the content was...
collected, the students transitioned into the editing phase, transforming their raw footage into comprehensive short films, continuously benefiting from the guidance and expertise provided by EuroSea’s and CAU’s onboard representatives. A total of 3 short films were finalized. The completion of some short films was hindered by rough sea conditions, leading to some students getting seasick. The produced content was presented to visitors of the German Federal Ministry for Science and Research (BMWF) in Bremerhaven, as well as in Kiel during the FYORD meets WASCAL - Ocean career job profiles workshop event.

Additionally, EuroSea played a pivotal role in enhancing the outreach efforts of the WASCAL Floating University 2023, as an endorsed UN Ocean Decade activity, by continuously creating engaging content throughout the expedition to promote the cruise. This support encompassed various multimedia formats, including short films, regular blog entries, and social media initiatives. A final video capturing the daily routines, discoveries, and vibrant life on board was also produced and uploaded to EuroSea’s YouTube account, providing viewers with an intimate glimpse into the expedition’s journey and its significance.

This collaborative effort enriched students’ understanding of the meticulous work involved in science communication and underscores the crucial importance of involving the next generation of marine scientists in practical exercises to equip them with both theoretical knowledge and practical skills.

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10 https://www.youtube.com/watch?v=b68FS74vPfU
Lessons learnt

Lessons learnt from engaging the next generation through trainings:

- **Holistic education is key:** Offering a combination of theoretical instruction and hands-on training, such as pre-cruise lectures and onboard training, delivered a comprehensive learning experience. Participants benefited from understanding the broader ocean observing value chain beforehand while simultaneously acquiring practical skills on-board.

- **Immersive experiences are transformative:** Engaging students in real-world research scenarios, beyond traditional classroom teachings, helped in offering authentic learning experiences. This equipped them with skills and knowledge that are more applicable in the real world.

- **Cross-regional collaboration:** Engaging students from diverse West African nations brought in varied perspectives and enhanced the learning environment. It also fostered meaningful personal connections, vital for lasting collaborations.

- **Structured onboard activities require optimal duration:** Rotating students through diverse modules offered a comprehensive insight into various marine research areas. However, a two-day rotation for some modules proved to be too short, potentially compromising depth of understanding. In the future, it may be beneficial to either extend the cruise duration or consider reducing the number of modules taught onboard.

- **Empower students with decision-making:** Allowing students to decide on various aspects of their projects, such as selecting interviewees or content formats, made them more invested in the process and increased motivation. However, some students seemed slightly overwhelmed and needed more guidance or examples of what could be done.

- **The significance of mentorship:** Continuous guidance from experts during activities, such as film editing or content creation, ensured students are on the right track and don’t feel lost.

- **Prepare for unforeseen challenges:** Activities such as marine research cruises can face unpredictable challenges, like rough sea conditions causing seasickness. It’s essential to plan some backup time to avoid unfinished deliverables due to time restriction.

2.4 Engaging the next generation of stakeholders through ocean literacy

Ocean Observers – Support of creation and sharing of educational material

The Ocean Observers Initiative\(^\text{11}\) is an international educational network composed of various stakeholders – including ocean scientists, teachers and educators, marine communicators and others, such as the general public and policy-makers. This network is dedicated to fostering marine science outreach activities and sharing educational experiences related to *in situ* ocean observations.

The primary goal of the Ocean Observers initiative is to:

\(^{11}\) [www.oceanobservers.org](http://www.oceanobservers.org)
• **Share expertise and resources**: the network serves as a platform for sharing expertise and materials related to ocean observations.

• **Facilitate collaboration**: it supports discussions and encourages the development of new international collaborative activities among people engaged in marine science outreach programmes.

• **Curate educational resources**: The Ocean Observers initiative assembles high-quality, multidisciplinary educational resources, which are freely accessible through the website. This repository aims to create a global ocean observation learning platform, providing educators with valuable marine science information they could apply to their unique environment.

At EuroSea, there's a profound understanding of the essential role which a healthy and rigorously monitored ocean plays for the well-being of future generations. Supporting the Ocean Observers initiative was a strategic move towards elevating and mainstreaming outreach efforts in ocean science. While many outreach activities in the realm of *in-situ* ocean observations predominantly have regional reach, EuroSea's involvement with Ocean Observers seeks to achieve broader visibility, not just nationally and across Europe but globally.

Engaging the younger generations is of paramount importance. Their early engagement paves the way for a future generation that is well-informed, proactive, and skilled in tackling marine challenges while grasping the importance of ocean observing and forecasting. Educational materials play a crucial role in this engagement. Not only do they provide a foundation of knowledge but also foster curiosity and a deeper connection to marine ecosystems. By endorsing and enhancing the Ocean Observers platform, EuroSea has aided in curating high-quality educational content and resources, making them accessible to a wide international audience. This initiative is especially pivotal for tapping into the potential of younger stakeholders, sparking their interest, and ensuring a continued legacy of EuroSea.

Through the financial support from EuroSea the Ocean Observers website underwent a comprehensive overhaul to enhance user experience, supervised by a specialised scientific editor. A total of 20 educational resources underwent significant improvements, including new layouts and scientific editing, and 12 new resources were added. These enhancements introduced new templates and provided detailed information for each resource. Additionally, navigation was enhanced through keywords and cross-links to create
pedagogical pathways among the resources. New illustrations are under development to describe scientific experiments, which will be available for download.

Furthermore, 10 thematic sheets on ocean observing networks were completely rewritten, offering more in-depth insights into in-situ ocean observing instruments. A graphic illustrator is working on new illustrations in the form of cartoon drawings to depict the functioning of these observing instruments. Moreover, these illustrations will be used to edit and publish a comic book focusing on the importance of ocean observations. This book will be a valuable resource for disseminating and communicating the Ocean Observers initiative and its educational platform. The publication will be available as a PDF on the website and printed formats and will be distributed to educators and communicators to help engage young minds in discussions about ocean observing. These creative tools have a remarkable ability to humanize and bring outsiders closer to the world of scientists and the instruments used to observe and monitor the ocean.

To further enrich the Ocean Observers learning platform, new educational resources, such as scientific quizzes and games, were developed and added. These developments aim to create a purpose-fit educational website. Several of these achievements and recent developments were presented during the poster session at the EuroSea Final Symposium 2023.

Lessons Learnt
A survey was created for the Ocean Observers community to gather insights into their experiences with the platform and materials. Despite efforts to reach out to the community and encourage their participation, only two responses to the survey were received. Unfortunately, no one of the Ocean Observers network offered help to facilitate a deeper understanding of how their students enjoy using the materials provided. The survey aimed to gauge the effectiveness of the platform in inspiring and engaging young learners in ocean-related topics, and there was a plan to design a separate survey for students to gather their perspectives. However, the response from the community was limited, and thus the survey could not be used.

At this time, it’s premature to provide "lessons learnt" from EuroSea's support for the Ocean Observers initiative. This collaboration remains a work in progress, and while significant steps have been taken, the full impact of these enhancements is yet to be realized. We eagerly anticipate the positive changes that will unfold as the improvements made to the Ocean Observers initiative begin to influence classrooms around the world.

2.5 Engaging the next generation of stakeholders through public events

Futurium Vision for Europe
EuroSea recognizes the pivotal role of the younger generation in shaping the future of ocean observing and forecasting. These young minds will soon be at the forefront of decision-making, and their early engagement ensures they are equipped with the knowledge to prioritize the health of our ocean and understand the vital role of ocean observing and forecasting. To foster this connection, EuroSea was represented as one of the
keynote speakers in the “Foreseeing Europe: Fresh Visions for the Future” event, organised in collaboration with the Schwarzkopf Foundation Young Europe. This event, hosted at the Futurium in Berlin on the International Day of Democracy, drew around 85 young attendees, many of them school kids accompanied by their teachers.

The event venue was arranged in a “fishbowl talk show” style. In the center, chairs were placed in a circle for the moderator and keynote speakers. There was an additional empty chair, inviting audience members to join the conversation directly. The event began with keynote speakers, including EuroSea’s representative, providing insights into their backgrounds and sharing their visions for Europe. EuroSea emphasized the integral role of the ocean in our daily life, underlining its influence on Europe’s present and future. This set the stage for profound discussions between the keynotes and attendees on their aspirations and hopes for Europe, but also speaking about their worries considering the large challenges our ocean is already facing today. The diverse backgrounds and interests of the young participants enriched the dialogue, and their enthusiasm and interest in the ocean underscored the importance of EuroSea’s engagement efforts. EuroSea understands the pivotal role of the younger generation in shaping the future of ocean observing and forecasting. It’s crucial to engage and inform them, especially those who might be exposed to ocean sciences for the first time. Actively participating in this event provided vital insights into the aspirations, worries and visions of Europe’s youth. For EuroSea connecting with these children was not just an outreach effort, but a strategic investment in the future. It enabled EuroSea to underscore the vital role of ocean sciences for our current and future well-being and planted the seeds for a generation that understands and values the importance of sustainable ocean observing. Engaging with this dynamic audience underscored EuroSea’s commitment to fostering a deeper understanding of our ocean among the next generation, ensuring a future that’s both informed and proactive.

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12 https://futurium.de/de/veranstaltung/foreseeing-europe-fresh-visions-for-the-future/foreseeing-europe-fresh-visions-for-the-future
Lessons Learnt

Lessons learnt – Public Events:

- **Direct engagement with youth**: Representing EuroSea and directly engaging in face-to-face conversations with the younger generation was not just enlightening but also incredibly motivating. It reinforced the idea that when we converse directly with young minds, there’s an energy and freshness of perspective that can be quite energizing.

- **Interactive event design**: The design of the event stood out because of its inherent interactivity. Rather than being passive listeners, participants were encouraged to actively contribute, making the discussions richer and more dynamic. Such formats can lead to deeper engagement and help in memorizing the messages conveyed.

- **Visual aids enhance comprehension**: The integration of the vision board, which was progressively updated on a screen at the venue, was a brilliant addition. It offered the audience a visual anchor, enabling them to track the evolving discussion. Visual aids, such as this, can significantly enhance the comprehension of the topics discussed and help in emphasizing the main points in the minds of the audience.
2.6 Engaging the next generation of stakeholders through podcasts

AtlantECO podcast
In alignment with EuroSea’s mission to foster greater awareness and education on the importance of ocean observing and forecasting, the project seized an opportunity to engage with the next generation of ocean stakeholders by featuring in one of the podcast episodes of AtlantECO. AtlantECO, a sister project to EuroSea, is an EU-funded initiative geared towards developing a holistic framework that provides knowledge-based resources for a comprehensive understanding and management of the Atlantic Ocean and its valuable ecosystem services. This project emphasizes citizen engagement, including those from industry and policy sectors, promoting responsible behaviour and stimulating Blue Growth. Through its research, AtlantECO concentrates on critical areas like microbiomes, plastic and the plastisphere, and seascape connectivity, bringing together a consortium of experts from Europe, South America, and South Africa.

The involvement of EuroSea in the AtlantECO podcast episode further exemplified its commitment to this shared vision. The episode spotlighted a EuroSea representative who discussed the imperative role of the ocean in our society and highlighted the significance of ocean studies for our collective future, as well as the critical role of sustainable ocean observing systems. The value of ocean data was highlighted, giving the example of how it assists with immediate decisions like weather predictions and setting aquaculture limits, while also offering insights into long-term changes such as climate effects and ocean current shifts. In total 26 people downloaded and listened to the podcast from countries all over the world (Belgium, Brazil, France, Germany, Ireland, Italy, Netherlands, Norway, Portugal, South Africa, Sweden, the United Kingdom, and the United States). By participating in this podcast, EuroSea reinforced its dedication to connecting with young ocean professionals, promoting the understanding of our ocean, and ensuring that future voices, filled with fresh perspectives and innovative ideas, are actively engaged in shaping ocean policies and practices.

Conclusion
In conclusion, the engagement initiatives undertaken by EuroSea to involve the next generation of stakeholders in the realm of ocean observing, monitoring and forecasting have brought valuable lessons. Through a comprehensive exploration of various approaches, several key takeaways have emerged.

First and foremost, dedicating a specific deliverable to engaging the next generation represents a significant step in the right direction. The associated activities undertaken not only highlight the importance of involving younger stakeholders in large innovation actions such as EuroSea but also emphasize the crucial role of engaging in meaningful dialogues with them. The EuroSea interactions with the next generation of stakeholders have not only provided valuable insights into their perspectives but also enabled intergenerational inclusivity, promoting career paths in ocean observing and forecasting and enriching EuroSea’s public engagement activities and impacts.

Secondly, the diverse range of engagement activities, from job profile workshops to educational podcasts and research cruises, has highlighted the importance of tailoring approaches to different age groups. Different age groups, from school children to university graduates, have unique interests, concerns, and aspirations, requiring tailored approaches for effective engagement. The overarching message is clear: knowing your audience is paramount. Adaptability and a willingness to try various engagement activities,
even if they may not go as planned, are essential. It is better to make an effort to connect with the next generation of stakeholders and evolve with their changing needs than to avoid engagement altogether.

In essence, this report underscores the importance of engaging the next generation with large-scale innovation actions such as EuroSea and similar projects, involving them in conversations which have an impact on their future careers and the evolution of marine science and oceanography, which in turn fosters the development of future-oriented innovations. EuroSea’s commitment to establishing connections with the next generation ensures a legacy of informed, proactive and engaged individuals who comprehend the significance of sustainable ocean observing and forecasting. These lessons, drawn from a diversity of engagement activities, provide valuable guidance for future initiatives aimed at fostering a deeper understanding of our ocean among the younger generation.

References


Annex I – Surveys

Survey for the SEA-EU Student Involvement at the EuroSea Annual Meeting 2022

<table>
<thead>
<tr>
<th>Practical organisation of the EuroSea Annual Meeting 2022</th>
</tr>
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<tbody>
<tr>
<td>Cádiz, Spain 2022</td>
</tr>
<tr>
<td>Dear SEA-EU students,</td>
</tr>
<tr>
<td>Once again thank you very much for attending the EuroSea</td>
</tr>
<tr>
<td>Annual Meeting 2022 in Cádiz!</td>
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<tr>
<td>We highly appreciate your input as early career ocean</td>
</tr>
<tr>
<td>professionals and hope you enjoyed the opportunity to share</td>
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<tr>
<td>your research and network with the EuroSea community.</td>
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<tr>
<td>This survey was put together to learn from this experience and</td>
</tr>
<tr>
<td>to collect feedback directly from you!</td>
</tr>
<tr>
<td>It only takes 5 min to complete! Please make sure to answer</td>
</tr>
<tr>
<td>the questions below latest until next week Friday, 10th of</td>
</tr>
<tr>
<td>June 2022.</td>
</tr>
<tr>
<td>We are looking forward to hearing from you!</td>
</tr>
<tr>
<td>Thank you!</td>
</tr>
</tbody>
</table>

* Indicates a required question

Practical organisation of EuroSea Annual Meeting 2022

1. How would you evaluate the general organisation of the event?
   Rate between 1 to 5 (1 is poor and 5 is outstanding)
2. How would you evaluate the coordination of the SEA-EU students before the event?
   Rate between 1 to 5 (1 is poor and 5 is outstanding)
3. How would you evaluate the coordination of the SEA-EU students at the time of the event?
   Rate between 1 to 5 (1 is poor and 5 is outstanding)

Student engagement with EuroSea community

1. Did your poster receive the attention that you expected?
   Rate between 1 to 5 (1 is poor and 5 is outstanding)
2. Were you able to establish professional relationships with EuroSea scientists during the poster session?
   a. Yes
   b. No
3. Do you think a poster session is an effective way to inform about your current research at such an event?
   Rate between 1 to 5 (1 is poor and 5 is outstanding)
4. Which type of session do you think is the most effective to inform about your research at such an event?
   a. Poster session
   b. Presentation
   c. Workshop
d. Other
5. Do you think it was a good decision to join the "icebreaker session" with the poster session?
   Rate between 1 to 5 (1 is “Should have been separate session” and 5 is “It was perfect like that”)
6. Did you receive any feedback about your poster?
   a. Yes
   b. No
7. Did you feel included in the discussion during the workshops?
   Rate between 1 to 5 (1 is “not at all” and 5 is “absolutely”)
8. Did you feel like your opinions/subject expertise were respected and taken into account/consideration?
   Rate between 1 to 5 (1 is “not at all” and 5 is “absolutely”)
9. Did workshop leaders/attendees approach you directly to hear your opinion about a specific topic?
   a. Yes
   b. No
   c. More or less
10. Did you receive constructive feedback from the workshop leaders?
    a. Yes
    b. No
    c. More or less
11. Were you able to establish professional relationships with EuroSea scientists during the workshop session?
    a. Yes
    b. No

Personal outcome
12. After attending the EuroSea Annual Meeting 2022 in Cádiz, would you consider following a career with a special focus on ocean observing and monitoring?
    Rate between 1 to 5 (1 is “absolutely not” and 5 is “definitely”)
13. Did the EuroSea Annual Meeting 2022 help you further define your specialisation path in marine sciences?
    Rate between 1 to 5 (1 is “not at all” and 5 is “absolutely”)
14. After attending the EuroSea Annual Meeting 2022 in Cádiz, are you now more interested in ocean observing and monitoring?
    Rate between 1 to 5 (1 is “not really” and 5 is “very much”)
15. Did you meet any inspiring EuroSea professionals?
    a. Yes
    b. No
19. Would you recommend this experience to your friends/fellow students?
    Rate between 1 to 5 (1 is “not at all” and 5 is “absolutely”)
20. Please add any suggestions or general comments below, thank you! (open question)
improve future engagement activities related to the EuroSea Project. All data will only be used for the final report of the EuroSea project and will be deleted by December 2023.

The job profile catalogue presented at the workshop will be sent to you once completed.

Thank you in advance for your collaboration. We really appreciate your time!

* Indicates a required question

1. In which age group do you belong?*
   a. 16-25
   b. 26-35
   c. 36-45

2. Highest level of studies completed*
   a. Primary school
   b. Secondary school
   c. Vocational Education and Training
   d. Bachelor’s Degree
   e. Master's Degree
   f. PhD
   g. Other:

3. Employment situation*
   a. Active/worker
   b. Student
   c. Worker and student
   d. Student seeking for a job
   e. Unemployed
   f. Seeking first job
   g. Unpaid domestic worker
   h. PhD student/ Postdoc
   i. Other:

4. How often do you participate in ocean science outreach activities such as webinars, conferences, workshops etc.?*
   a. Once a year
   b. 2-4 times a year
   c. 5 times a year

Assessment of the EuroSea workshop at the ICYMARE conference 2022

5. How satisfied are you with the workshop/exhibition?*
   a. very satisfied
   b. satisfied
   c. neutral
   d. unsatisfied
   e. very unsatisfied

6. Do you think showcasing job profiles is a great activity to inform ECRs about different opportunities as well as connect them to the topic of ocean observing, monitoring, and forecasting?*
   a. Yes
   b. No
c. Maybe
7. Did the activity inspire you about potential job positions in ocean observing, monitoring and forecasting?*
   a. Yes
   b. No
   c. More or less
8. What is your level of interest in the different job profiles?*
   a. A lot
   b. Considerably
   c. Somewhat
   d. A little
   e. Not at all
9. Were you aware of the EuroSea project before attending the activity?*
   a. Yes
   b. No
   c. More or less
10. Do you find the EuroSea project interesting?*
    a. Yes
    b. No
    c. More or less
11. Did you have previous knowledge about ocean observing, monitoring and forecasting?*
    a. Yes
    b. No
    c. More or less
12. In your opinion, ocean observing and forecasting is...* 
    a. Very important
    b. Important
    c. Moderately important
    d. Slightly important
    e. Not important
13. After attending the EuroSea workshop/visiting the exhibition at the ICYMARE conference in 2022, 
    would you consider following a career with a particular focus on ocean observing, monitoring, and 
    forecasting?*
    a. Yes
    b. No
    c. Maybe
14. After attending the EuroSea workshop/exhibition at the ICYMARE conference in 2022, are you now 
    more interested in ocean observing, monitoring and forecasting?*
    a. Yes
    b. No
    c. Maybe
15. Would you recommend this experience to your friends/fellow students?*
    a. Yes
    b. No
    c. Maybe

More about you
16. What other(s) EuroSea project public engagement activities would you participate in?*
   a. Workshop
   b. Training
   c. Conference
   d. Exhibition
   e. Contest / Prizes
   f. Other(s)

17. What activity format do you prefer?*
   a. Virtual
   b. On-site
   c. No preference

18. If you have any comments or suggestions to help us improve the following activities, please write them below...

Survey FYORD meets WASCAL - Ocean career job profiles workshop

Dear WASCAL and FYORD students,

once again thank you very much for attending the EuroSea Job profile workshop in Kiel! It was a pleasure to meet you!

The following survey is intended to collect impressions and insights of the EuroSea workshop at the FYORD meets WASCAL event in Kiel 2023. It should take no longer than 5 minutes to complete and will serve to improve future engagement activities related to the EuroSea Project. All data will only be used for the final report of the EuroSea project and will be deleted by December 2023.

The job profile catalogue presented at the workshop will be sent to you once completed.

Thank you in advance for your collaboration. We really appreciate your time!

* Indicates a required question

A little bit about yourself

1. To which age group do you belong?*
   a. 16-25
   b. 26-35
   c. 36-45
   d. 46 or older

2. What is your highest level of studies completed?*
   a. Primary school
   b. Secondary school
   c. Bachelor’s Degree or Diploma of Higher Education
   d. Master’s Degree / Certificate of Higher Education
   e. PhD
   f. Other:

3. What’s your current employment situation?*
   a. Active/worker
   b. Student
   c. Worker and student
   d. Student seeking for a job
e. Unemployed
f. Seeking first job
g. Unpaid domestic worker
h. PhD student / Postdoc
i. Other:

4. Have you participated in activities related to ocean observing, monitoring and forecasting and engaging the next generation before?*
   a. Yes
   b. No

5. If yes, please give some examples

Feedback about the EuroSea Job profiles workshop

6. How satisfied are you with the workshop overall?*
   a. Very unsatisfied
   b. Unsatisfied
   c. Neutral
   d. Satisfied
   e. Very satisfied

7. Do you think showcasing job profiles is a great activity to inform Early Career Ocean Professionals about different opportunities in the field of ocean observing, monitoring, and forecasting?*
   a. Yes
   b. No

8. Do you believe that showcasing job profiles in the field of ocean observing could be an effective way to increase awareness and engagement among the next generation?*
   a. Yes
   b. No

9. What is your level of interest in the different job profiles?*
   a. Not at all interested
   b. Somewhat interested
   c. Neutral
   d. Interested
   e. Highly interested

10. Have you heard of the term "ocean observing" BEFORE the job profiles workshop at FYORD meets WASCAL?*
    a. Yes
    b. No

11. Has learning about job profiles related to ocean observing increased your interest in pursuing a career in the field of ocean observing, monitoring and forecasting?*
    a. Yes
    b. No

12. Please explain your choice above. Yes, because... or No, because...* 

13. How would you rate the usefulness of the activity that introduced you to different job niches in the field of ocean observing for your own career?*
    a. Not at all useful
    b. Somewhat useful
    c. Neutral
d. Useful
   e. Very useful
14. After attending the workshop, has your interest in the topic of ocean observing, monitoring, and forecasting increased?*
   a. Not at all
   b. Somewhat
   c. Neutral
   d. A little bit
   e. A lot
15. How important do you think it is for the next generation to be engaged with ocean observing, monitoring and forecasting?*
   a. Not at all
   b. Somewhat important
   c. Neutral
   d. Important
   e. Very important
16. Would you recommend this experience to your friends/fellow students?*
   a. Yes
   b. No
17. Which of the following EuroSea project public engagement activities would you be interested in participating in? (select all that apply)*
   a. Workshop
   b. Training
   c. Conference
   d. Exhibition
   e. Contest / Prizes
   f. Other (please specify)
18. What activity format do you prefer?*
   a. Virtual
   b. On-site
   c. No preference
19. If you have any comments or suggestions to help us improve the planned activity, please write them below...*

Survey Ocean Observers Network

We invite you to participate in this survey to gather valuable insights about your experience with the Ocean Observers initiative and platform (www.oceanobservers.org).

Your experiences are incredibly valuable as we explore the effectiveness of the Ocean Observers initiative in engaging the next generation with ocean observing, monitoring, and forecasting topics. Filling in this survey will help us learn from your experiences, successes, and challenges with the educational materials provided by the platform.

Your participation plays a vital role in fostering a stronger connection between the next generation and our oceans. This survey will take only a few minutes, and your responses will remain anonymous.
Thank you for shaping the future of marine science education with us. Let's make learning about our oceans an enjoyable and enlightening journey!

Fiona from EuroSea in collaboration with the Ocean Observers initiative 🌊🌊

* Indicates a required question

1. How did you first learn about the Ocean Observers initiative and platform?*
   a. Through an educational institution or school
   b. Through a colleague or friend
   c. Through a professional organization or network
   d. Through online searches or social media
   e. Other (please specify below)

2. Have you already used the educational materials from the Ocean Observers platform?*
   a. Rarely
   b. Occasionally
   c. Regularly
   d. Frequently

3. How often do you use educational materials related to ocean observing, monitoring, and forecasting?*
   a. Rarely
   b. Occasionally
   c. Regularly
   d. Frequently

4. Which age group's educational materials do you find most useful for your teaching or educational activities?*
   a. 5-8 year olds
   b. 9-11 years
   c. 12-18 years
   d. All ages

5. How would you rate the variety of educational materials offered by the Ocean Observers platform?*
   a. Excellent, a wide range of materials
   b. Good, with a decent selection
   c. Adequate, but could use more variety
   d. Limited, needs more diversity

6. What motivates you to use the educational materials provided by the Ocean Observers platform?*
   a. Personal interest
   b. Professional development
   c. Educational purposes
   d. Research related activities
   e. Other (please specify)
   f. Please specify "other" below

7. Have you noticed any positive changes in your students' interest or understanding of ocean observing and forecasting after using the educational materials?*
   a. Yes, there was a significant positive impact
   b. Yes, there was some impact
   c. No, there was no noticeable change
8. Do you think the educational materials provided by the Ocean Observers platform effectively convey the importance of ocean observing and forecasting for environmental sustainability?*
   a. Yes, they do an excellent job
   b. To some extent, they could improve
   c. No, they need enhancements

9. How satisfied are you with the content and relevance of the educational materials on the Ocean Observers platform?*
   a. Very satisfied
   b. Satisfied
   c. Neutral
   d. Dissatisfied
   e. Very dissatisfied

10. How user-friendly do you find the Ocean Observers platform interface?*
    a. Very user friendly
    b. User friendly
    c. Neutral
    d. Not very user-friendly
    e. Not user friendly at all

11. Have the educational materials from the Ocean Observers platform met your expectations in terms of quality and depth of information?*
     a. Yes, completely
     b. Yes, to some extent
     c. Neutral
     d. No, not entirely
     e. No, not at all

12. What type of educational resources do you find most valuable on the Ocean Observers platform?*
     a. Reading activity
     b. Videos and online activities
     c. Interactive group activities (e.g. board games)
     d. Individual activities (e.g. coloring sheets)
     e. Hands-on experiments
     f. Other (please specify)
     g. Please specify "others" below

13. Are there specific educational materials or resources you would like to see added to the Ocean Observers platform in the future?* (open question)

14. How likely are you to continue using the Ocean Observers platform's resources in the future?* (open question)
     a. Very likely
     b. Likely
     c. Neutral
     d. Unlikely
     e. Very unlikely

15. What challenges, if any, have you faced while using the Ocean Observers platform's materials in your educational activities?* (open question)

16. How has the Ocean Observers platform impacted your ability to engage students with ocean observing, monitoring, and forecasting topics?* (open question)

17. Is there anything else you would like to share or suggest to improve the Ocean Observers platform and its educational resources?* (open question)
## Annex II – Survey results

Survey for the SEA-EU Student Involvement at the EuroSea Annual Meeting 2022

1. How would you evaluate the general organisation of the event?* (Figure II.1)

Figure II.1 illustrates the attendees' ratings of the event's organization. The feedback reveals a predominantly favourable view, with most participants rating the organization as "4" out of a 5-point scale, where "5" indicates "Outstanding" and "1" indicates "Poor." No ratings at the lower end (1 and 2) were recorded, suggesting a general satisfaction with the event's organization.

<table>
<thead>
<tr>
<th>How would you evaluate the general organisation of the event?</th>
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<tbody>
<tr>
<td>Total responses: 11</td>
</tr>
<tr>
<td>Responses</td>
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<tr>
<td>5</td>
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</tbody>
</table>

2. How would you evaluate the coordination of the SEA-EU students before the event?* (Figure II.2)

Figure II.2 displays the evaluation of SEA-EU students' coordination before the event. Most of the feedback is positive, with the most common rating being a "5" on a 5-point scale, where "5" signifies "Outstanding" and "1" signifies "Poor". No ratings were given at the lowest end of the scale ("1"), and there were fewer ratings at the "2" and "3" levels, indicating overall satisfaction with the coordination efforts before the event.

<table>
<thead>
<tr>
<th>How would you evaluate the coordination of the SEA-EU students before the event?</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
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</tbody>
</table>
3. How would you evaluate the coordination of the SEA-EU students at the time of the event?* (Figure II.3)

Figure II.3 displays the evaluation of the SEA-EU students' coordination at the time of the event. Most of the feedback is positive, with the most common rating being a "4" on a 5-point scale, where "5" signifies "Outstanding" and "1" signifies "Poor". Unlike the ratings of question 2, here we see more ratings with "4" being recorded, but none at "1" or "2", suggesting that the coordination at the time of the event was generally more satisfactory compared to the overall event organization.

Student engagement with EuroSea community

4. Did your poster receive the attention that you expected?* (Figure II.4)

Figure II.4 reflects whether posters received the expected attention. Out of 11 responses, the most common was "4" on a 5-point scale, where "5" signifies "Outstanding" and "1" signifies "Poor". This indicates that many attendees found the attention their posters received to be good but not outstanding. Both "1" and "2" received only one vote each, suggesting that attendees rarely found the attention to be poor. The "3" rating suggests a moderate level of satisfaction among some attendees.
5. Were you able to establish professional relationships with EuroSea scientists during the poster session?* (Figure II.5)

Figure II.5 shows that out of 11 respondents, 8 were able to establish professional relationships with EuroSea scientists during the poster session, indicating a favourable outcome for networking. Meanwhile, 3 respondents reported that they did not establish such relationships, suggesting there may be room for improvement in facilitating networking opportunities at future events.

6. Do you think a poster session is an effective way to inform about your current research at such an event?* (Figure II.6)

Figure II.6 indicates that among 11 respondents, the majority (8) consider a poster session to be an outstanding or near outstanding method to convey information about their current research at such an event. Three respondents chose "3" on the scale, indicating a moderate opinion. No responses were given for the lower end "Poor" of the scale (1 and 2) indicating that none of the respondents found the poster session to be ineffective. Overall, the results suggest a generally high regard for poster sessions as a means of communication in a research context.
7. Which type of session do you think is the most effective to inform about your research at such an event?* (Figure II.7)

Figure II.7 indicates the most effective session type for informing about research at conferences. Out of 11 respondents, presentations were viewed as the most effective by 5 participants, suggesting a preference for direct speaking engagements. Poster sessions were favoured by 4 participants. Workshops were chosen by 2 participants, showing a smaller yet significant preference for interactive, hands-on sessions. These results suggest a varied perspective on effective communication methods at academic events with a preference for presentations or poster sessions.

8. Do you think it was a good decision to join the "icebreaker session" with the poster session?* (Figure II.8)

Figure II.8 indicates that out of 11 respondents, 7 received feedback on their poster, while 4 did not. This suggests that the majority had the opportunity to engage with attendees of the EuroSea Annual Meeting and receive comments, critiques, or discussions about their work, which can be valuable for academic exchange and development, however, there is room for improvement to enhance interactions at poster session.
9. Did you receive any feedback about your poster?* (Figure II.9)

Figure II.9 visualizes responses to whether joining the "icebreaker session" with the poster session was a good decision. Out of 11 total responses, the most (4) agree that it was perfect as it was, rating it a "5". A significant number (3) rated it a "4", still positive but not as enthusiastically. Fewer respondents (in total 2) felt neutral with a rating of "3" and slightly less positive "2" about combining the two sessions. Two respondents thought it should have been separated, giving a rating of "1", indicating mild dissatisfaction with the decision to combine the sessions.

10. Did you feel included in the discussion during the workshops?* (Figure II.10)

Figure II.10 reflects participants' feelings of inclusion during the workshops. The majority, with 7 out of 11 responses, felt neutral, rating their inclusion as "3". A smaller group, 3 participants, felt absolutely included with a "5" rating. A single respondent felt quite positive about their inclusion, giving a "4". There were no responses for "1" and "2", indicating that no one felt excluded. These results suggest a mostly neutral feeling about the inclusivity in the workshop discussions, which indicates room for improvement.
11. Did you feel like your opinions/subject expertise were respected and taken into account/consideration?* (Figure II.11)

Figure II.11 shows responses to whether participants' opinions and subject expertise were generally respected and considered at the event. A dominant majority, 7 out of 11, felt neutral, giving a rating of "3". One participant felt his or her opinion was moderately considered, rating "4" and three participants felt absolutely respected in their expertise rating "5". This indicates overall neutral feedback regarding respect for participants' expertise, with some positive exceptions. There is room for improvement.

12. Did workshop leaders/attendees approach you directly to hear your opinion about a specific topic? * (Figure II.12)

Figure II.12 illustrates that out of 11 respondents, 6 indicated that workshop leaders or attendees approached them directly to hear their opinion on a specific topic ("Yes"), suggesting a proactive engagement. Meanwhile, 3 respondents did not experience this direct approach ("No"), and 2 felt that they were approached to a lesser extent ("More or less"). This indicates varied levels of personal engagement during the workshops with the majority feeling included and respected in their expertise.
13. Did you receive constructive feedback from the workshop leaders? * (Figure II.13)

Figure II.13 indicates that out of 11 respondents, 4 received constructive feedback from workshop leaders ("Yes"), while 2 did not receive such feedback ("No"). The largest segment, 5 respondents, felt they received feedback that was "More or less" constructive, suggesting some ambivalence about the usefulness or quality of the feedback provided. This response highlights the varying degrees of perceived benefit from the interactions with workshop leaders.

14. Were you able to establish professional relationships with EuroSea scientists during the workshop session? * (Figure II.14)

Figure II.14 shows that out of 11 respondents, 5 were able to establish professional relationships with EuroSea scientists during the workshop sessions ("Yes"), while a slightly higher number, 6, were not able to do so ("No"). This indicates a nearly even split among participants regarding their ability to network effectively with EuroSea scientists during the workshops, which implies room for improvement in the interaction between students and EuroSea scientists during the workshops.
15. After attending the EuroSea Annual Meeting 2022 in Cádiz, would you consider following a career with a special focus on ocean observing and monitoring?* (Figure II.15)

Figure II.15 shows the impact of the EuroSea Annual Meeting 2022 in Cádiz on participants’ career considerations. Out of 11 respondents, a total of 9, of which an equal number (3 each) rated their interest in pursuing a career in ocean observing post-meeting as “2,” “3,” and “4,” indicating a range from slight interest, neutral interest to strong interest of pursuing a career in ocean observing and monitoring. No one chose “1” for no interest at all, and two respondents would definitely consider a career in ocean observing and monitoring, rating their interest as “5.”

16. Did the EuroSea Annual Meeting 2022 help you further define your specialisation path in marine sciences?* (Figure II.16)

Figure II.16 visualizes the level of increased interest in ocean observing and monitoring among SEA-EU attendees after the EuroSea Annual Meeting 2022 in Cádiz. It shows the distribution of responses on a scale from “1” (not really interested) to “5” (very much interested). Two respondents indicated a level 1 of interest, another two chose level 2, the majority with four responses indicated a neutral position at level 3, two respondents marked level 4, and one person expressed the highest interest level at 5.
17. After attending the EuroSea Annual Meeting 2022 in Cádiz, are you now more interested in ocean observing and monitoring? (Figure II.17)

Figure II.17 shows that out of 11 attendees to the EuroSea Annual Meeting, 2 reported no increased interest in ocean observing and monitoring (“1”), another 2 reported a slight increase (“2”), the majority, 4 respondents, chose “3” indicating a neutral position, 2 reported increased interest (“4”), and 1 respondent is now very much interested (“5”) in ocean observing and monitoring. This almost even distribution among all answer possibilities suggests a generally neutral but varied shift in interest levels.

18. Did you meet any inspiring EuroSea professionals?* (Figure II.18)

Figure II.18 indicates that out of 11 respondents, 9 met inspiring EuroSea professionals at the event, which is a substantial majority. On the other hand, 2 of the respondents did not have that experience. This suggests that for most attendees, the event provided valuable opportunities for inspiration and professional engagement within the EuroSea community.
19. Would you recommend this experience to your friends/fellow students?* (Figure II.19)

Figure II.19 shows that out of 11 respondents, a significant majority, 10 in total, would absolutely recommend the experience to friends or fellow students, indicating strong positive feedback with a rating of “5”. There is a single respondent who rated the experience at “4”, suggesting a slightly less positive stance. No respondents rated the experience negatively, with “1” or “2”, and none rated it as neutral “3”. This overwhelmingly positive response suggests a high level of overall satisfaction with the experience among the attendees.

20. Please add any suggestions or general comments below, thank you!

A total of 2 individuals provided the following responses:

1. I felt like at the beginning (before the event) everything was a “last minute thing” and we had very little time to organize things (send back documents, check the travel info, do posters) which was very stressful and maybe a bit unnecessary (I don’t know if it was possible to inform us earlier that our applications were accepted -even one week earlier would make a huge difference). We (as sea-eu students) have also had a problem with understanding some workshops - the project is big and has been going on for quite a while now and there are a lot of very specific words (and acronyms) which we were not familiar with. A short information sheet before each session would be perfect - so we could get a bit more “into topic”.

2. The whole experience was great, but in my opinion, the biological aspect of marine science should be more represented. It felt like we were discussing only physical oceanography.
1. In which age group do you belong?* (Figure II.20)

Figure II.20 shows the age distribution of the 12 workshop attendees: 7 are in the 26-35 age group, representing the majority, and 5 are in the 16-25 age group. This indicates that the participants are predominantly young adults, with a significant representation of those who are likely in the early stages of their careers or higher education.

2. Highest level of studies completed* (Figure II.21)

Figure II.21 details the highest level of studies completed by the 12 workshop attendees: The majority, 7, have completed a Master's degree, 3 have a Bachelor's degree, 1 has a PhD, and 1 has completed secondary school. This indicates a highly educated group, with most participants having at least a graduate-level education.
3. Employment situation* (Figure II.22)

Figure II.22 illustrates the employment situation of the 12 workshop attendees: 5 are engaged in academia as PhD students or postdocs, 3 are balancing work and studies, another 3 are solely students, and 1 is working part-time while looking for a job. This indicates a predominantly academic-oriented group with a substantial number actively pursuing higher education or academic research roles.

4. How often do you participate in ocean science outreach activities such as webinars, conferences, workshops etc.?* (Figure II.23)

Figure II.23 indicates the frequency of participation in ocean science outreach activities among the 12 workshop attendees. The majority, 7 participants, engage in such events 2-4 times a year. Three respondents participate more than 5 times a year, suggesting a high level of engagement, while 2 respondents attend such activities once a year, indicating less frequent involvement. This data reflects a range of commitment levels to ocean science outreach, with most respondents participating several times annually.
5. How satisfied are you with the workshop/exhibition?* (Figure II.24)

Figure II.24 shows the satisfaction levels of the 12 respondents with the EuroSea workshop at the ICYMARE conference 2022. The highest number of respondents, 4, felt satisfied about the workshop/exhibition. Three respondents were neutral, and another three were very satisfied with the experience. One participant felt unsatisfied, and one of the respondents was very unsatisfied. This suggests that while the majority had a positive or neutral perception of the workshop, there were a few who did not find it as fulfilling.

6. Do you think showcasing job profiles is a great activity to inform ECRs about different opportunities as well as connect them to the topic of ocean observing, monitoring, and forecasting?* (Figure II.25)

Figure II.25 displays feedback from the 12 workshop attendees on whether showcasing job profiles is an effective activity to inform Early Career Researchers (ECRs) about opportunities in ocean observing, monitoring, and forecasting. The vast majority, 10 respondents, agree that it is a great activity ("Yes"), while 2 respondents are uncertain ("Maybe"). This indicates strong support for the idea that job profiles are beneficial for ECRs within this field.
7. Did the activity inspire you about potential job positions in ocean observing, monitoring and forecasting?* (Figure II.26)

Figure II.26 presents responses from the 12 workshop attendees regarding whether an activity inspired them about potential job positions in ocean observing, monitoring, and forecasting. Four respondents felt inspired ("Yes"), five felt somewhat inspired ("More or less"), and three did not feel inspired by the activity ("No"). This suggests a varied impact of the activity, with a notable portion experiencing some level of inspiration.

8. What is your level of interest in the different job profiles?* (Figure II.27)

Figure II.27 shows the levels of interest in different job profiles among the 12 workshop attendees. A single respondent has a high level of interest ("A lot"), the majority, 9 respondents, have a "Considerable" level of interest, and 2 respondents have "Somewhat" of an interest. There are no responses for "A little" or "Not at all," indicating that none of the participants have low or no interest in the job profiles presented. This shows a generally high level of interest among the attendees.
9. Were you aware of the EuroSea project before attending the activity?* (Figure II.28)

Figure II.28 shows that all 12 respondents were not aware of the EuroSea project before attending the workshop. This response indicates that the activity introduced the EuroSea project to a new audience, expanding its reach and engagement.

10. Do you find the EuroSea project interesting?* (Figure II.29)

Figure II.29 shows that out of 12 workshop attendees, 11 find the EuroSea project interesting ("Yes"), while 1 respondent is uncertain, feeling "More or less" interested. This reflects a strong positive reaction to the EuroSea project among the participants.
11. Did you have previous knowledge about ocean observing, monitoring and forecasting?* (Figure II.30)

Figure II.30 illustrates that out of 12 workshop attendees, 11 had previous knowledge about ocean observing, monitoring, and forecasting ("Yes"), and only 1 respondent had some knowledge ("More or less"). This suggests that most of the attendees were already familiar with the field before the activity.

12. In your opinion, ocean observing and forecasting is...* (Figure II.31)

Figure II.31 shows that out of 12 workshop attendees, a significant majority of 11 consider ocean observing and forecasting to be "Very important", while only 1 respondent thinks it is "Important". This overwhelming response underscores a strong consensus on the significance of ocean observing, monitoring and forecasting and its applications.
13. After attending the EuroSea workshop/visiting the exhibition at the ICYMARE conference in 2022, would you consider following a career with a particular focus on ocean observing, monitoring, and forecasting?* (Figure II.32)

Figure II.32 illustrates the career consideration of 12 respondents after attending the EuroSea workshop/visiting the exhibition at the ICYMARE conference in 2022. Eight respondents do consider a career in ocean observing, monitoring, and forecasting ("Yes"), while 4 remain undecided ("Maybe"). This suggests that the event was influential in encouraging a majority of attendees to think about a career in the field of ocean observing, monitoring and forecasting.

14. After attending the EuroSea workshop/exhibition at the ICYMARE conference in 2022, are you now more interested in ocean observing, monitoring and forecasting?* (Figure II.33)

Figure II.33 shows responses from 12 individuals regarding their interest in ocean observing, monitoring, and forecasting after attending the EuroSea workshop/exhibition at the ICYMARE conference in 2022. Six respondents are tentatively interested ("Maybe"), four have an increased interest ("Yes"), and two have not developed a greater interest ("No"). This indicates a predominantly positive or curious response to the field.
15. Would you recommend this experience to your friends/fellow students?* (Figure II.34)

Figure II.34 shows that out of 12 workshop attendees, 9 would recommend the experience to friends or fellow students ("Yes"), 2 might recommend it ("Maybe"), and 1 would not ("No"). This indicates that the majority found the experience positive and worth recommending it to peers.

16. What other(s) EuroSea project public engagement activities would you participate in?* (Figure II.35)

Figure II.35 outlines participant interest in various EuroSea project public engagement activities, allowing for multiple responses. The activity with the highest interest is attending conferences, with 11 responses. Workshops follow with 9 responses, training sessions have 6, exhibitions have 4, and contests/prizes have 3. Two respondents are interested in other unspecified activities. This shows a clear preference for conferences and workshops as the main medium for engagement.
17. What activity format do you prefer?* (Figure II.36)

Figure II.36 visualizes preferences for activity formats among the 12 workshop attendees. The majority, with 6 votes, prefer on-site activities, indicating a slight inclination towards in-person engagement. Meanwhile, 5 participants expressed no preference, showing a flexible attitude towards the mode of activity. Only 1 respondent favours virtual activities. Overall, this suggests a balanced distribution of preferences, with a slight leaning towards traditional, face-to-face interactions.

18. If you have any comments or suggestions to help us improve the following activities, please write them below:...

One individual provided the following response:

1. After reading the workshop description, I expected it to be an interactive discussion on the role of ocean monitoring and how EuroSea contributes to it, not a career development exercise. I did like the concept of sharing experiences and discussing career steps in a blended group and wish that some of the people from the career profiles had attended in person for quick Q&A sessions. Fiona’s energy was very friendly, calm and encouraging, which made the session run smoothly.
1. To which age group do you belong?* (Figure II.37)

Figure II.37 shows the age distribution of the 16 ocean career job profiles workshop attendees: the largest group, 8 respondents, are in the 16-25 age bracket, 7 respondents are in the 26-35 age bracket, and 1 respondent is in the 36-45 age bracket. This suggests that most attendees are young adults, with a significant presence of those likely in the early stages of their careers or higher education.

2. What is your highest level of studies completed?* (Figure II.38)

Figure II.38 shows the highest level of education among the 16 ocean career job profiles workshop attendees: the majority, 8 respondents, have completed a Master's degree, 7 have a Bachelor's degree, and 1 has completed secondary school. This indicates a group with a significant level of higher education.
3. What's your current employment situation?* (Figure II.39)

Figure II.39 presents the current employment situation of the 16 ocean career job profiles workshop attendees: the largest group, 9 respondents, are students not currently seeking employment, 4 are students actively seeking a job, and 3 are both working and studying. This suggests that most of the respondents are still in the educational phase, with some simultaneously gaining work experience and others beginning their job search which is a great moment to inform about ocean careers.

4. Have you participated in activities related to ocean observing, monitoring and forecasting and engaging the next generation before?* (Figure II.40)

Figure II.40 displays responses from the 16 ocean career job profiles workshop attendees regarding their previous involvement in activities related to ocean observing, monitoring, and forecasting. A majority, 10 respondents, have participated in such activities ("Yes"), while 6 have not ("No"). This shows that most respondents have some prior engagement with ocean observing and monitoring but still a substantial part was engaged with this topic for the first time.
5. How satisfied are you with the workshop overall?* (Figure II.41)

Figure II.41 represents the satisfaction levels of the 16 ocean career job profiles workshop attendees. The highest number of respondents, 9, report the highest level of satisfaction (“5”). 6 responses indicate a slightly lower level of satisfaction (“4”), and only 1 respondent feels neutral (“2”). No respondents reported the lowest levels of satisfaction (“1” and “2”). This indicates a generally high level of satisfaction among the participants with the workshop.

Feedback about the EuroSea Job profiles workshop

6. Do you think showcasing job profiles is a great activity to inform Early Career Ocean Professionals about different opportunities in the field of ocean observing, monitoring, and forecasting?* (Figure II.42)

Figure II.42 shows the feedback from 16 ocean career job profiles workshop attendees on the value of showcasing job profiles to Early Career Ocean Professionals. All participants agree that this is a beneficial activity for informing about opportunities in ocean observing, monitoring, and forecasting. This consensus suggests a strong endorsement for such initiatives as effective tools for career development and informing about this field.
7. Do you believe that showcasing job profiles in the field of ocean observing could be an effective way to increase awareness and engagement among the next generation? * (Figure II.43)

Figure II.43 reflects the collective opinion of the 16 ocean career job profiles workshop attendees, indicating a complete agreement that showcasing job profiles in ocean observing is an effective strategy to elevate awareness and engage the next generation. This underscores the recognized importance of proactive engagement in the field to inspire and inform upcoming professionals.

8. What is your level of interest in the different job profiles? * (Figure II.44)

Figure II.44 represents the interest levels of the 16 attendees to the ocean career job profiles workshop in different job profiles on a 5-point scale where "1" indicates minimal interest and "5" the highest interest. The majority, 11 participants, express the highest level of interest, suggesting a strong enthusiasm or relevance in the job profiles presented. A minority, 4 respondents, still show a strong interest with a rating of “4”. Only one participant rates their interest at a neutral level of “3”. Overall a high appeal of the job profiles is shown.
9. Have you heard of the term "ocean observing" BEFORE the job profiles workshop at FYORD meets WASCAL? * (Figure II.45)

Figure II.45 presents the familiarity of the workshop participants with ocean observing before the job profiles workshop at FYORD meets WASCAL. A significant majority, 13 out of 16 respondents, indicated they had previously heard of this field, while only 3 participants were not aware of it before the workshop. This suggests that the concept of ocean observing was already relatively well-known among the majority of the participants.

10. Has learning about job profiles related to ocean observing increased your interest in pursuing a career in the field of ocean observing, monitoring and forecasting? * (Figure II.46)

Figure II.46 displays responses to whether learning about job profiles related to ocean observing has increased interest in pursuing a career in the field of ocean observing, monitoring, and forecasting. Out of 16 workshop attendees, a vast majority, 15 participants, affirmed that their interest has increased, while only 1 respondent indicated no increase in interest. This suggests a strong positive influence of the job profiles workshop on the attendees' career considerations in ocean observing, monitoring and forecasting.
11. Please explain your choice above. Yes, because... or No, because...*

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<table>
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<tr>
<td>All participants provided the following responses:</td>
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<tr>
<td>1. more career paths were shown.</td>
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<td>2. I was already interested, so it was a good opportunity to gain more information.</td>
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<td>3. Seeing different pathways for careers and seeing which skills are required specifically is very inspiring and encouraging. Especially since there is the opportunity to get in contact with the people behind the career path.</td>
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<td>4. I know about all the different fields that I did not know before</td>
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<td>5. Yes, because as an early career ocean profession I was not aware of those jobs, but now I know.</td>
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<tr>
<td>6. Yes, because I'm not sure yet if I prefer a job in academia or if I shouldn't do a PhD and instead another ocean related job.</td>
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<td>7. Yes, because ocean observing is a real work behind the ocean observation. A big point I learn about during the workshop and my interest is always about interaction between scientific research and society.</td>
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<td>8. Yes, because learning about job profiles help me to better prepare my future and encourage me in this field.</td>
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<tr>
<td>9. Going through the job profiles, I find one that matched my interest and that motivates me to work towards that goal since it is achievable and important for ocean studies and the overall knowledge in Marine science.</td>
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<tr>
<td>10. Yes, it has made me aware of other job options that play an important role in ocean observing and monitoring that I didn't know about before. It's always good to know that there are other options in the job market.</td>
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<tr>
<td>11. ...</td>
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<td>12. Yes, because it was very interesting to know about the different jobs profile related to our field of study.</td>
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<td>13. Yes, because I was not aware of certain jobs related to Ocean Observing before like during the workshop.</td>
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<td>14. Yes, because I would like to contribute blue ocean.</td>
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<td>15. Because I learned that I can do it without a PhD.</td>
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<td>16. I already knew which job I want to reach.</td>
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</table>
12. How would you rate the usefulness of the activity that introduced you to different job niches in the field of ocean observing for your own career? * (Figure II.47)

Figure II.47 illustrates participants' ratings of the usefulness of the workshop introducing them to different job niches in ocean observing for their careers. A total of 16 responses were recorded. The majority, 9 respondents, rated the usefulness as the highest (“5”). Four participants rated it a “4”, indicating high usefulness, while 2 were neutral about its usefulness, rating it a “3”. No responses were recorded for the lowest levels of usefulness (“1” and “2”), indicating overall positive feedback.

13. After attending the workshop, has your interest in the topic of ocean observing, monitoring, and forecasting increased? * (Figure II.48)

Figure II.48 shows participants' levels of increased interest in ocean observing, monitoring, and forecasting after attending the workshop, with a scale from “1” (no increase) to “5” (high increase). Out of 16 total responses, the most common rating is 5, with 9 participants indicating a significant increase in interest. There are 5 responses at level 4, suggesting a moderate increase, and 2 responses at level 3, indicating the workshop did not increase nor decrease their interest. No one rated their increase in interest as level “1” and “2”, indicating an overall increase of interest in the topic of ocean observing, monitoring and forecasting.
14. How important do you think it is for the next generation to be engaged with ocean observing, monitoring and forecasting? * (Figure II.49)

Figure II.49 displays the perceived importance of engaging the next generation with ocean observing, monitoring, and forecasting, rated on a scale from “1” (not important) to “5” (very important). Out of the 16 workshop attendees, a majority of 14 rate it as “5”, indicating they believe it is very important. There is 1 response at level 4, showing moderate importance. No respondents selected levels “1” or “2”. This suggests a strong consensus amongst the participants on the high importance of engaging the upcoming generation in this area.

15. Would you recommend this experience to your friends/fellow students? * (Figure II.50)

Figure II.50 shows the response of the workshop participants regarding whether they would recommend this workshop to their friends or fellow students. All 16 respondents answered "Yes," indicating a full consensus that the experience was positive and recommendable. This strong endorsement suggests that the participants found significant value in the experience.
16. Which of the following EuroSea project public engagement activities would you be interested in participating in? (select all that apply) * (Figure II.51)

Figure II.51 displays participants' interest in various EuroSea public engagement activities, with multiple responses allowed per participant. Workshops and conferences are the most popular, each with 14 responses, indicating a strong interest in these interactive formats. Training sessions also have a notable appeal with 12 responses, followed by exhibitions with 10. Contests and prizes have less interest, with 5 responses, and other unspecified activities have the least, with only 2 responses, suggesting a preference for structured interactive and participatory events.

17. What activity format do you prefer? * (Figure II.52)

Figure II.52 presents participants' preferences for the format of activities, with a total of 16 responses. Most participants have a preference for on-site activities (8 responses), showing a significant inclination towards in-person engagement. Virtual activities are less popular, with only 2 responses, suggesting limited interest in remote participation. A notable number of participants (6 responses) have no preference between on-site and virtual formats, indicating flexibility or indifference towards the mode of participation.
18. If you have any comments or suggestions to help us improve the planned activity, please write them below...*

A total of 16 individuals provided the following answers:

1. *maybe more time to look at the different profiles*
2. *No further suggestions*
3. *Thank you for this opportunity, I wish to attend similar formats in the future. I think on-site activity's are very beneficial since staring conversations before and after comes more naturally. But I think a virtual format could also be beneficial.*
4. *No comments .*
5. *No comments*
6. *no further comments*
7. *No comment*
8. *More on-site event, less virtual event because in-person is more effective and always attracts people.*
9. *I would implore that opportunities are provided especially to the 'less endowed' society in terms technological advancement and financial resources so that efforts are well distributed to ensure success in whatever is intended to be achieved.*
10. *If possible, be able to bring one of the professionals working on one of the jobs presented in the workshop.*
11. *I really enjoyed the workshop. I just wish we could had more time to go in details on the profiles. Overall it was a good experience.*
12. *Share the information related to EuroSea as much as possible*
13. *The workshop was interesting and full of content however it will be very nice to also have some job profil for Early Career Ocean Professional with not that high experience. Because the profils that have been presented was very high experience.*
14. *My suggestion is to have more formation in Africa*
15. *Enlarge the Projet and cover Africa*
16. *...*