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Deliverable D4.4 – *Tool Validation Report*

WP4 – Learning and testing in Living Labs: Optimizing blueprint generator to deliver conservation results and socio-economic benefits

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HORIZON-MISS-2021-OCEAN-02-01- Blueprint demonstration for co-created effective, efficient and resilient networks of MPAs

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Document History

Deliverable Title	Tool Validation Report
Brief Description	Blue4All Work Package 4, is focused on coordinating and facilitating collaboration between project Work Packages — particularly Work Packages 2 and 3 — and the Living Lab MPAs to identify solutions to achieve effective, efficient and resilient MPAs and MPAs networks throughout the whole MPA process. These efforts resulted in tools that were both field-tested and stakeholder-validated, co-created to suit the specific context of 15 Living Labs. This document outlines the tool testing and validation process carried out across the MPAs and MPA networks in the Blue4All project. It highlights the involvement of Stakeholder Engagement Groups and the project's work on equity, diversity, and inclusion.
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Author(s)	Kora Dvorski, Ana Krvarić
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Approved by	Maëlla Sicard, Annaïk Van Gerven
Authors	Agnes Putnik, Ana Krvarić, Bob Rumes, Eira Carballo Cardenas, Francesca Frau, Francesco de Franco, Francesco Paolo Mancuso, Francisco R. Barboza, Franziska Drews-von Ruckteschell, George Hoppit, Isabell Storsjö, Kaisa J. Raatikainen, Kora Dvorski, Kristiina Nurkse, Lois Watt, Luciana Muscogiuri, Maëlla Sicard, Maria Del Mar Bosch Belmar, Maja Skovgaard Jessen, Michela Congiu, Milena Raičević, Moses Adjei, Myriam Johanna Perschke, Cintia O. Quintana, Riku Varjopuro, Sergio Scanu, Soukaina Anougmar, Tomas Buitendijk, Venla Ala-Harja, Wito Van Oijstaeijen, Sophie Van Schoubroeck
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16.07. 2025.	0.1.	Kora Dvorski, Ana Krvarić	Development of the first draft of the deliverable. The first draft was sent for feedback to project partners involved in the processes presented in the document.
6.10.2025.	0.2.	Maëlla Sicard, Annaïk Van Gerven	The second draft of the deliverable was developed based on comments and feedback (on the first draft of the document) received from project partners. The second draft was reviewed by nominated Blue4All reviewers.
22.10.2025.	1.0.	Kora Dvorski, Ana Krvarić	Final submission to the Project Lead.

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Glossary

Bottom-up approach is a strategy that emphasizes the crucial role of local communities and stakeholders in decision-making processes regarding the management of natural areas and resources. A part of the bottom-up approach is empowering local communities and organizations to take the lead in identifying needs, setting priorities, and planning and implementing specific actions and measures. It recognizes the importance of local and traditional knowledge, participation, and a sense of ownership.

Co-creation is a collaborative process of creating effective, efficient and resilient MPAs and MPA networks. The co-creation processes in Blue4All results from the close collaboration between the scientific community and the project stakeholders in Living Labs.

Contact Point is the contact person responsible for the interaction with a given Living Lab and its stakeholders. They coordinate and organize the stakeholder engagement activities within their Living Labs in all Blue4All interactions.

Information Sites are sites that offer a representative view on the challenges faced and tools implemented in the diverse landscape of MPAs and networks of MPAs in Europe and beyond. They were mainly engaged in the Baseline Assessment process.

Living Labs are MPAs and MPA networks that the project has involved in a co-creation process with the end goal of producing solutions for effective, efficient and resilient MPAs.

Marine Protected Areas (MPAs) are clearly defined areas, designated and managed, through legal or other effective means, to achieve the long-term conservation of nature in marine environments. The essential criterion for MPAs, or protected areas in general, is that nature conservation is the primary objective.

MPA representatives, within Blue4All, are MPA managers or main contacts from the MPA participating in project activities.

MPA networks are collections of single MPAs working in synergy to fulfil conservation aims more efficiently.

Stakeholder Engagement Groups (SEGs) are the in-situ working groups established in the Living Labs that take part in the project activities. They consist of the representatives of the main identified stakeholder groups who take part in the project activities on a voluntary basis. SEGs participate in the co-creation process, starting from the needs assessment, to testing and validation of tools and solutions recognized as important for their respective Living Labs. They are also involved in the testing and validation of the Blueprint Platform, the final project result.

Tool is a mean to reach an end solution, as defined within Blue4All based on the summary of discussions of main terms reported in Blue4All_GA2025_Report.

Top-down approach refers to involving MPA managers and decision-makers at the higher level (ministries, representatives).

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List of abbreviations

EU – European Union

HELCOM – Baltic Marine Environmental Protection Commission

MPA – Marine Protected Area

NEAT – Non-indigenous Species Effect Assessment Tool

OECM – Other Effective Area-Based Conservation Measures

PEAR – Perception Elicitation and Awareness Raising

PW4B – PlanWise4Blue

SAGE – Site-level Assessment of Governance and Equity

SEG – Stakeholder Engagement Group

WP – Work Package

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Executive Summary

This report provides a comprehensive overview of the processes implemented within the Living Labs of the Blue4All project, with a particular focus on co-creation and collaboration. Unlike the tool-focused approach of project's Work Packages 2 and 3, this report adopts a process-oriented perspective, capturing the real-life dynamics and experiences emerging from the project´s Living Labs.

It outlines the logical flow of activities involving Living Labs and Stakeholder Engagement Groups, including the Baseline Assessment, Needs Assessment, match-making, tool testing and validation, and engagement of Stakeholder Engagement Groups across all stages. By documenting these activities, the report highlights the value of structured, participatory methods in fostering innovation and stakeholder involvement.

The lessons learned and practical recommendations derived from these activities are intended to support future projects, particularly those using co-creation approaches with Marine Protected Areas and Marine Protected Area networks. Key factors for successful implementation included early planning of activities, timely engagement of relevant stakeholders (especially within Living Labs), and a shared understanding of roles across all levels of the project partnership. Collaboration with the Living Labs and various stakeholders required flexibility and continuous adaptation, particularly in aligning activities and timelines to ensure meaningful engagement. Strong guidance and collaboration with Contact Points, who played a central role in integrating project activities into the local context of the Living Labs, enabled clearer communication and smoother stakeholder engagement. The continuous collection and integration of feedback from the Living Labs also allowed for the identification of good practices and the timely resolution of challenges.

The report also reflects on the project´s work on gender equality in EU marine research and Marine Protected Area governance, revealing strong interest among project consortium members in integrating gender considerations into their work. However, effective integration requires a deep understanding of local contexts and internal policies of partner organizations. These findings highlight the importance of dedicating specific tasks to gender equality and ensuring careful planning in future projects, shifting it from a cross-cutting theme to a concrete, actionable priority.

The primary audience for this report includes the Blue4All consortium members, Horizon Europe project partners, and organizations interested in implementing co-creation processes within Marine Protected Areas and Marine Protected Area networks.

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1. Introduction

Within the Blue4All project, Work Package (WP) 4 “Learning and testing in Living Labs: Optimizing blueprint generator to deliver conservation results and socio-economic benefits” leads the integration of Information Sites and Living Labs, guiding the project's bottom-up approach. It gathers knowledge and insights from Marine Protected Area (MPA) managers, practitioners, and stakeholders to better understand the challenges and potential solutions related to MPA governance, designation, and management. Information Sites are MPAs in Europe and beyond involved in the Baseline Assessment in the initial phases of the project, informing it about the existing practices in various MPA realms. Living Labs, on the other hand, are MPAs and MPA networks involved throughout the whole project, from the initial Baseline Assessment, Needs Assessment, tool testing and validation, and finally, through testing and validation of the Blueprint platform. Living Labs are driving the bottom-up approach, through the establishment and coordination of Stakeholder Engagement Groups (SEGs).

This deliverable summarizes the work conducted under Tasks 4.1 “Benchmarking experiences on governance, socio-economic and ecological processes from MPA/OECM practitioners and stakeholders in project information sites” and Task 4.2 “Co-creating and applying socio-economic, governance, ecological and environmental tools in project´s Living Labs to validate their effectiveness and build tangible benefits for the involved MPAs and MPA networks”. Specifically, it displays processes from Baseline Assessment and Needs Assessment, to tool testing and validation, and explores the functionality of different tools in various Living Lab contexts. Additionally, key insights on gender equality awareness in the context of EU marine research projects and MPAs are presented, drawing on discussions with project partners to reflect on gender as a cross-cutting theme.

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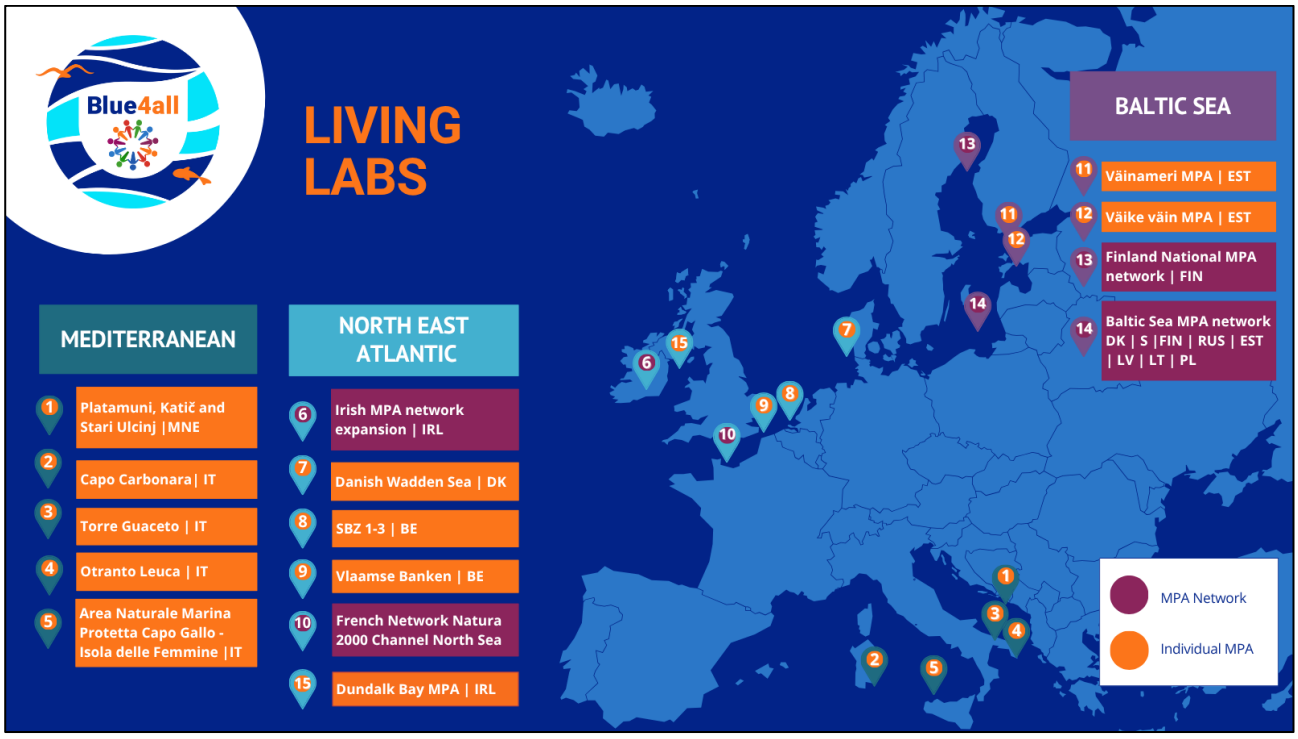
2. Implementation of processes

Task 4.2 "Co-creating and applying socio-economic, governance, ecological and environmental tools in project´s Living Labs to validate their effectiveness and build tangible benefits for the involved MPAs and MPA networks" played a key role in the co-creation, testing and validation of tools developed in WP2 and WP3. The knowledge generated under Task 4.1 "Benchmarking experiences on governance, socio-economic and ecological processes from MPA/OECM practitioners and stakeholders in project information sites" – particularly from the Baseline Assessment – provided essential groundwork for this process and helped shape the direction of tools´ co-creation.

Task 4.2 was carried out through a structured engagement process involving stakeholder representatives and authorities across the 14 Blue4All Living Labs and the Dundalk Bay Information Site (Figure 1). Following the Baseline Assessment, Blue4All was given the opportunity to more actively involve Dundalk Bay in the tool testing and validation process. Hence, for the purpose of this deliverable, Dundalk Bay served the role of a Living Lab.

Figure 1. Geographic overview of Blue4All Living Labs, which implemented tool testing and validation



Co-creation relies on close collaboration between the project team – especially teams from WP2 and WP3 – Contact Points and Living Lab representatives. Where active, SEGs served as in-situ co-management bodies for the Blue4All project processes, helping to identify current needs within MPAs, contribute to tool co-creation, and support implementation.

Based on prior work – especially Tasks 2.1, 2.2, 2.3, 2.4, and 3.2 – relevant tools were initially proposed by WP2 and WP3 teams. Living Labs and engaged stakeholders then participated in an iterative exchange, which included:

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A) tool selection and adaptation – providing input to ensure tools fit each Living Lab's needs and contexts; and
B) tool testing and validation – applying the tools in the field and providing feedback to support further refinement.

This collaborative, bottom-up process helped ensure that tools were grounded in real-world needs and effectively supported socio-economic, governance, ecological, and environmental objectives within MPAs.

2.1 Baseline Assessment

Baseline Assessment was conducted under Task 4.1 "Benchmarking experiences on governance, socio-economic and ecological processes from MPA/OECM practitioners and stakeholders in project information sites". It was designed to gather information on the unique characteristics and current practices of 25 MPAs and MPA networks across Europe and beyond, including all Information Sites and Living Labs. The process documented existing governance, socio-economic and ecological processes across all sites and identified tools and approaches used by MPA managers, along with details of existing management plans. The collected data served as a foundation for a more targeted Needs Assessment and informed co-creation processes carried out with the Living Labs later in the project. The findings also supported the systematic review of tools for governance, socio-economic and ecological aspects of MPAs carried out within WP2 and WP3.

The Baseline Assessment was implemented through a survey divided into three sections due to its complexity and the volume of data required. Section 1 covered general information, while Sections 2 and 3 focused on specific topics that required expert input and supporting documentation

More specifically, the Baseline Assessment survey consisted of:

1. Section 1 (online, via Typeform site): A set of common questions about the current MPA reality, jointly developed by WP2 and WP3;
2. Section 2 (PDF): WP2-specific questions focusing on social, economic, and governance-related aspects;
3. Section 3 (PDF): WP3-specific questions addressing ecological and environmental aspects.

The survey was distributed by WP4 to the Contact Points representing each of the 25 MPAs and MPA networks involved. The Contact Points were responsible for survey implementation with the MPA manager and other relevant experts involved in governance, socio-economic and ecological aspects of MPA planning and management. The Contact Points were invited to also adapt the survey to local languages and contexts where necessary.

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During the 2024 Blue4All General Assembly in Lecce, project partners reflected collectively on the Baseline Assessment process to extract key lessons and identify opportunities for improvement. Key insights from that discussion are presented in the following section.

Results of the Baseline Assessment were not compiled in a separate report but were presented at the final meeting related to Task 4.1 to the Contact Points and relevant WP representatives.

2.1.1 Baseline Assessment – insights and recommendations

The Blue4All project partners recognized the Baseline Assessment as a valuable process for learning about the practices in place within a variety of MPAs in Europe, namely, among the 25 sites included in the survey. However, several challenges emerged in the process, primarily related to communication, timelines, adapting to various contexts across the sites, and the overall complexity of the questionnaire. The Baseline Assessment survey was positively received by project partners for its multiple-choice structure and the inclusion of definitions and explanatory notes, which helped clarify what exactly was required in the survey.

Several recommendations were identified to enhance the implementation of upcoming processes. These are presented in Table 1.

Table 1. Recommendations derived from the Baseline Assessment implementation

RECOMMENDATION	DESCRIPTION
Preparation of a guiding note	Although WP4 provided guidance and organized a kick-off activity as a part of regular monthly update meetings with the Contact Points, the instructions for the completion of the survey were not fully understood by everyone. Given the survey's flexible design across three sections, which allowed it to be completed by individuals, teams, or divided into parts, it would have been helpful to include a comprehensive written guiding note at the beginning of the survey. This guiding note should have clearly defined: • the target audience of the survey; • roles and responsibilities of each party involved, including WP4, Contact Points, and MPA representatives; • possible implementation formats, including different ways to divide or assign survey sections; • the purpose of each section or type of question; • the level of expertise required for completing different survey sections; • timeline; • coordination procedures between WP4, Contact Points and Information Sites and Living Labs. Including a written guiding note would have ensured clarity and consistency across all sites and helped Contact Points better

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	understand the project's expectations. This specific recommendation was adopted and used in the Needs Assessment, which was implemented afterwards in Living Labs. Having detailed written guidance as part of the Needs Assessment package was positively received by Contact Points.
Improving interaction and feedback mechanisms	Participants noted the need for more interactive communication to better align project actions with the context of each site and to ensure the timelines for defined activities are respected. Suggestions for a more interactive communication included (i) one-on-one sessions for MPA representatives organized by the Contact Points (took place across several sites), (ii) workshops or group discussions to guide survey completion and (iii) pilot testing to identify potential gaps and refine the questionnaire at an early stage. These mechanisms were implemented across some of the sites and could be key for improving engagement and the quality of responses. WP4 incorporated this approach soon after the Baseline Assessment and encouraged the implementation of the Needs Assessment in the form of workshops and group discussions. Additionally, in the Needs Assessment, more time was dedicated for pilot testing of the semi-structured questions within the project. Making use of an interactive platform in the implementation of the survey would be useful to further discuss and clarify the survey questions and responses. Such a platform would allow for more direct contact between project researchers, Contact Points, and MPA representatives, which would be useful for achieving more accurate results.
Strengthening the role of Contact Points	The Contact Points played a crucial role in tailoring the Baseline Assessment to the context of each site. Strengthening communication with the Contact Points and involving them early in planning (e.g., when setting timelines) improves clarity and engagement, enables more realistic coordination, and supports the Contact Points in mobilizing the right expertise. Such communication measures were adopted and well-received during the Needs Assessment, which ensured a smoother process compared to the Baseline Assessment.
Adopting a strategic, flexible approach to engagement	When working with multiple Living Labs, it is important to recognize that levels of engagement may vary. A more strategic and flexible approach is recommended, focusing on: • prioritizing engagement with actively involved Living Labs; • aligning project goals with local needs and expectations; • reducing the number of sites involved, if needed, to balance the quality of input with project capacity and timelines;

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	• providing alternative options for Living Labs that are less active, especially those who still have high interests but less capacity or resources to involve.
Implementing survey within high-level environments	In cases of MPA networks that function on a strictly top-down level and are coordinated by high-level processes and not MPA managers themselves, such as the Baltic Sea MPA network or Finland's MPA network, distributing the survey to each individual MPA was not feasible. Therefore, the survey needed to be adapted to fit the network-level perspective. Questions were simplified and distributed within the relevant working groups active, e.g., within the Baltic Marine Environmental Protection Commission (HELCOM). The approach of preparing survey materials and distributing them during or after meetings of relevant Working Groups was adopted for the Baltic MPA network and Finland's MPA network.

2.2 Needs Assessment

The Needs Assessment was carried out with the aim of identifying and prioritizing specific needs and challenges to be addressed within Living Labs. These needs were considered across ecological, environmental, and socio-economic dimensions, in alignment with the ongoing and expected developments within the MPAs linked to each Living Lab. The information gathered through this process was used to strategically select and, where necessary, design tools tailored to the needs and demands of each Living Lab. To ensure that MPA representatives could express the needs of their Living Lab in their own words, a semi-structured approach was adopted, using group discussions with SEGs, as well as interviews with key individuals within Living Labs. The process itself began in spring 2024 and was implemented as a co-creation effort involving several key actors throughout different stages. These included team members from WP2, WP3, WP5, and WP6, as well as the Contact Points who participated in the preparation of the discussion guide, with predetermined, but open-ended questions. The implementation of the Needs Assessment involved the Contact Points, MPA representatives, and SEG members. WP4 played a central coordinating role, ensuring that tasks and responsibilities were clearly defined, communication among stakeholders was efficient, and that the entire process was implemented in a timely and organized manner.

Co-creation was not limited to the design of the Needs Assessment discussion guide but was also embedded in the methodology for implementing the assessment. This approach helped to anticipate and address potential challenges early on and ensured that the assessment could be efficiently executed to select the most appropriate tools for testing within each Living Lab.

The initial phase of the Needs Assessment included early discussions between WP2, WP3, and WP4 team members, which focused on designing the structure of the process and the key questions to be posed to Living Labs´ representatives and stakeholders. The

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development of the discussion guide itself went through several iterations, with the final version being shaped by the feedback gathered from the Contact Points, who reviewed the questions within the discussion guide and provided detailed input that was subsequently integrated by the WP2 and WP3 team members.

The Needs Assessment process formally began in April 2024 with a preparatory meeting held by the WP4 with the Contact Points to discuss detailed implementation instructions and empower them for the process.

The Needs Assessment was implemented through group discussions (workshops) involving the SEG in each Living Lab or, when necessary, through interviews with relevant stakeholders. During the Needs Assessment, stakeholders were encouraged to identify needs specific to both their stakeholder group and their respective Living Lab. This enabled the Blue4All project to align the selection of tools with the unique context and priorities of each Living Lab. Following the initial collection of Needs Assessment information, further meetings were held with the Contact Point and MPA representatives to deepen understanding and ensure that WP2 and WP3 team members propose the most appropriate tools.

The process of Needs Assessment was finalized by the end of May 2024, with the delivery of Milestone 9 ˝Information packages on governance, socio-economic, ecological and environmental needs of the Living Labs delivered to WP2 and WP3˝. Some updates were received in the months following May 2024 due to certain challenges in some of the Living Labs.

During the process, various challenges were encountered that were communicated through bilateral meetings with the Contact Points, email communication, monthly WP4 meetings, and a dedicated workshop organized in December 2024 by WP4. As a result, corresponding solutions were proposed by the project team to ensure effective and successful implementation of the Needs Assessment. Table 2 outlines the identified challenges and corresponding proactive mitigation measures and reactive responses (i.e., solutions) applied.

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Table 2. Identified challenges and solutions applied during the Needs Assessment

CHALLENGE	SOLUTION
Some stakeholders were unreachable or unresponsive	A proactive communication plan was established at the beginning of the process, which included a clearly defined timeline, assigned roles for all involved parties, and regular reminders and follow-ups to maintain engagement and provide space for discussing any emerging issues. The Contact Points played a crucial role in this process by actively motivating participation and facilitating local engagement within their Living Labs. They were encouraged to clearly communicate the benefits of participation – such as the opportunity to co-create tools, receive tailored support, and contribute directly to the development of MPAs. In situations where certain stakeholders remained unresponsive, the process continued with those who were responsive and able to participate. At the same time, efforts were made to keep the unresponsive stakeholders informed and engaged through updates, leaving the door open for them to join at a later stage when their involvement became possible.
Delays in the Needs Assessment implementation due to heavy seasonal workload and administrative changes within some of the Living Labs	To address this challenge, flexible scheduling was applied to ensure that the Needs Assessment could be implemented during less demanding periods in each Living Lab's annual cycle. This involved early planning and the ability to adjust timelines based on local constraints. Flexibility was also built into the way the group discussions or interviews were administered. The methodology could be adapted to the specific context and needs of each Living Lab. In some cases, administrative changes and local challenges caused delays in implementation. To ensure all Living Labs could participate in the tool testing phase, the project allowed the Needs Assessment to be completed slightly beyond the original deadline.
Difficulty in focusing the stakeholders´ discussion only on MPAs	Although the Needs Assessment discussion guide had a clearly defined focus on MPAs, some stakeholders tended to steer discussions toward broader topics beyond this specific Needs Assessment´s scope. To support the Contact Points in maintaining focus, detailed implementation guidelines were provided, including instructions on how to steer discussions. At the same time, the Contact Points were given flexibility to structure workshop or interviews in a way that acknowledged broader concerns, while ensuring that specific segments remained focused on MPA-related topics.
A need to modify the final open-ended questions within the Needs Assessment discussion guide and the mode of	To address this challenge, the Needs Assessment discussion guide was designed with a modular structure. Core topics remained consistent across all Living Labs to ensure comparability, while optional sections allowed for adaptation to local contexts. The Contact Points were encouraged to propose modifications based on

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implementation to suit the specific situation of some Living Labs	their contextual knowledge. These proposed changes were then reviewed by the WP2 and WP3 to ensure that overall methodological consistency was maintained.
Clarifications and more detailed information were needed from some Living Labs after the end of the Needs Assessment process	Since the implementation of the Needs Assessment was not done directly by the WP2 and WP3 team members, some necessary information was either unclear or missing from the initial Needs Assessment responses. To address these gaps, the WP2 and WP3 teams engaged in several follow-up interactions with the respective Living Lab teams. With those follow-ups, they provided clarification about the tools and testing methodologies to the Living Labs, while collecting additional data required for accurate analysis.

2.2.1 Key learnings and recommendations derived from the process

Valuable recommendations were provided by both Contact Points and Living Lab representatives during the early stages of the Needs Assessment design and throughout its implementation. These insights helped ensure the process was efficient, context-sensitive, and inclusive of the diverse realities across the Blue4All Living Labs. Many of these recommendations have relevance beyond the scope of the Blue4All and can be applied in broader contexts. Mentioned learnings and recommendations are presented in Table 3.

Table 3. Key learnings and recommendations from the Needs Assessment process

Key learnings from the Blue4All Needs Assessment process	
Co-creation is essential to organizing a relevant and effective Needs Assessment process	Transparent and regular communication in the co-design of the Needs Assessment process, involving multiple work packages, Living Lab representatives, and stakeholder groups, ensures that the process is adapted to local contexts and realities, resulting in efficient implementation.
Flexibility is critical to address diversity across Living Labs	The wide variation among Living Labs – including individual MPAs and MPA networks, different governance structures, and varying stages of development – requires a flexible and adaptive approach to both the semi-structured discussion guide and implementation methodology.
Stakeholder engagement can be uneven but manageable	While some stakeholders may be unresponsive or difficult to reach, a proactive approach – supported by the involvement of the Contact Points and consistent following up – can help sustain momentum and ensure that the essential information is gathered.
Feedback loops enhance the quality and depth of data	Iterative refinements to the discussion guide and follow-ups after initial data collection help clarify responses and fill gaps, contributing to a stronger foundation for tool selection.

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A modular and structured approach improves adaptability	The modular structure of the discussion guide allows for both consistency and context-specific adjustments, enabling meaningful comparisons while respecting local needs.
Recommendations for future Needs Assessments in similar contexts	
Maintain a modular, adaptable design of the Needs Assessment discussion guide	Ensure core topics are standardized, while allowing flexibility to tailor certain sections based on the local context and maturity of each Living Lab.
Ensure active involvement of local Contact Points	Empowering the Contact Points from the beginning helps ensure stakeholder buy-in, local relevance, and smooth implementation.
Provide tool examples to guide stakeholder reflection	Offering concrete examples of tools supports stakeholders in identifying their priorities more clearly and understanding the implications of tool testing.
Differentiate between 'wants' and 'needs' in stakeholder input	Facilitate discussions that distinguish between aspirational requests and actual needs. This is crucial for selecting actionable, appropriate tools.
Account for MPA network-specific dynamics	Tailor engagement and scheduling strategies for MPA networks, recognizing that they operate differently from individual MPAs in terms of internal processes and decision-making timelines.
Be flexible in scheduling and communication	Plan around seasonal or administrative constraints by building adaptable timelines and maintaining ongoing, transparent communication about expectations and benefits. As well, the language of communication towards the SEG should be adapted to target groups so that the process and terminology is understandable by all.
Recognize limits of co-creation across all settings	Adapt the level and mode of co-creation to suit local engagement capacities. Let the SEG define what is most appropriate for their context.
Ensure structured follow-up mechanisms or a multiple stage approach	Anticipate the need for post-assessment clarification and set up structured channels for follow-up to refine data before moving to tool selection and testing. Another option would be to anticipate the Needs Assessment as a multiple stage approach, offering a possibility for in-depth discussions and clarification of actual needs within Living Labs.

2.3 Analysis of Needs Assessment responses and match-making

Analysis of the Needs Assessment responses was conducted from June until October 2024. Following that, the relevant tools were identified and proposed to the Living Labs for testing and validation – the so-called match-making phase. Due to challenges in some Living Labs,

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the Needs Assessment and its analysis were done after the end of 2024. This required additional effort from the project staff but ensured all Living Labs were involved in tool testing.

The match-making process was led collaboratively by WP2 and WP3 team members, with the aim of proposing suitable tools and corresponding testing methodologies for each Living Lab. These proposals were grounded in the needs identified during the Needs Assessment and further refined through follow-up discussions with Living Lab representatives to capture context-specific information.

Tools proposed to Living Labs were selected from a predefined list developed during earlier stages of the project – particularly through Task 1.3 and tool assessment activities carried out within WP2 and WP3 (Tasks 2.1, 2.2, 2.3, 2.4, and 3.2). Before matching relevant tools with Living Labs´ needs, WP2 and WP3 teams conducted detailed internal assessments of the most promising tools to deepen understanding of tool functionality and suitability. They assessed the workload, time requirements, and preconditions of each tool, and prepared testing protocols, ensuring each tool could be effectively applied to each Living Lab´s context.

Although the approach was designed to be collaborative, some Living Labs expressed a desire for greater visibility of the full range of available tools and more opportunities to participate in tool selection. This occasionally led to the perception that the process was more top-down than originally intended. This perception is understandable given that tool selection involved balancing a number of complex and interrelated factors, including: i) the specific needs, capacities, and contexts of each Living Lab; ii) the functionality and relevance of available tools; iii) the resource requirements for testing each tool; and iv) the available support capacity and timelines of the WP2 and WP3 teams.

Once a possible match between tools and Living Labs´ needs was proposed, WP2 and WP3 team members initiated targeted discussions with the Contact Points and Living Labs´ representatives, focused on clarifying expectations from the Blue4All project, agreeing on the next steps in the tool testing phase, and aligning on schedules and the required work effort for testing each tool. The final tool selection was therefore the result of negotiation, aligning project insights with Living Labs´ needs and capacity.

Throughout the match-making process, the project team had to adapt to evolving conditions in the Living Labs, including shifts in some of Living Labs´ focus, changes in available resources or staff, and administrative or institutional restructuring. This required a flexible and iterative approach to ensure continued alignment between project goals and Living Lab realities. At this point in the project, it was decided to include the Dundalk Bay Information Site as an alternative test site for the socio-governance tools, as the status of the MPA network expansion process did not allow these tools to be tested in the Irish MPA network Living Lab. It was recognized as an opportunity to identify a different way to test socio-governance tools in the Irish context and provide learnings for the network in the future.

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An overview of the tools tested and validated across Blue4All Living Labs is presented in Table 4.

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Table 4. Overview of tools tested and validated across Blue4All Living Labs

Living Lab	Social and governance tools (Task 2.2)	Ecosystem services valuation tools (Task 2.3)	Business models and financing tools (Task 2.4)	Ecological and environmental tools (Task 3.2/3.3)
Mediterranean				
Otranto Leuca (I)	X			
Torre Guaceto (I)	X		X	
Capo Gallo - Isola delle Femmine (I)	X		X	
Capo Carbonara (I)	X		X	
Platamuni, Katič, Stari Ulcinj (MNE)	X			
North-East Atlantic				
Irish MPA network (IRL)				X
Dundalk Bay (IRL)	X			
Vlaamse Banken (BE)		X		
SBZ 1-3 (BE)			X	
Danish Wadden Sea (DK)		X		X
French Natura 2000 network Chanel North Sea (FR)	X	X		X
Baltic Sea				
Väinameri (EST)				X
Väike väin (EST)				X
Finnish MPA network (FIN)	X			
Baltic Sea MPA network (DK, SE, FI, EST, LV, LT, PL, DE, RUS)	X		X	X

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2.4 Tool testing and validation

The tool testing and validation process began in October 2024 and continued until October 2025. It was a continuous process that needed to be flexible and adapted to the type of tools being tested and validated, and the internal dynamics of the Living Labs. This resulted in a varied approach across Living Labs.

The tool testing and validation began after the selection of appropriate tools for each Living Lab, aimed to address prioritized needs detected through the Needs Assessment. This involved adapting existing socio-economic, governance, environmental, and ecological tools to a specific Living Labs' context, which was done by WP2 and WP3 team members in collaboration with Living Lab representatives and SEGs. The goal was to ensure that each tool´s testing and validation was tailored to the specific needs, conservation priorities, and management objectives of each Living Lab. As a continuation of the process, Living Labs (i.e., MPA representatives and SEGs) implemented selected tools and reported on tool´s field application.

An overview of tools tested and validated across Blue4All Living Labs is presented in Table 5, along with general insights from the exercise. The focus is mainly on experiences in setting up the work, communication and collaboration with Living Lab stakeholders, as well as the relevance and functioning of tools in the specific Living Lab context. Table 5 is organized around: (i) the general needs detected and addressed through the process (first column), (ii) the tools used in the specific context of each Living Lab (second column), and (iii) the reflections on practical implementation and functionality of tools in different settings (third column). The table does not contain detailed information about the specific Living Lab context, or specificities of different tools tested and validated in various settings. This information will be contained, along with a detailed description of the tool testing and validation conducted in Tasks 2.2, 2.3, 2.4, and 3.3, in the corresponding deliverables (i.e., deliverables 2.2, 2.3, 2.4 and 3.3).

Additionally, the deliverable 5.2 "Panorama Booklet", aimed at practitioners in MPAs, will offer further insight into the most successful cases of tool testing and validation across the Blue4All Living Labs.

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Table 5. Overview of key insights of tool testing and validation across Blue4All Living Labs

General needs detected through the Needs Assessment	Tools tested to address specific needs of Living Labs	General insights from the tool testing in specific contexts
Understanding perceptions and facilitating participative processes in MPA planning and management (corresponding to Task 2.2 tools)	**Perception Elicitation and Awareness Raising[1] (PEAR)** refers to a set of tools used with the double aim of understanding perceptions of various stakeholder groups about the marine environment and the MPA and raising awareness by sharing information about the MPA. Tools were implemented by means of surveys, semi-structured interviews with stakeholders, and/or group discussions and workshops in Living Labs. PEAR tools were tested in various settings: i) the MPA currently in the establishment process (Otranto-Leuca; Italy), ii) newly established MPA (Katič MPA, Montenegro), iii) existing protected sites with a need to enhance the stakeholder engagement in the protected area management (Isola delle Femmine MPA, Italy, and, Littoral Seino-Marin MPA, France). In the **Otranto-Leuca** site, tool testing aimed to understand and influence boat and dive operators, as well as tourists' perceptions, to facilitate the MPA establishment process. In the **Isola delle Femmine MPA,** tool testing aimed to understand boat and dive operators, as well as tourists'	<u>General insights from PEAR tool testing:</u> **1. Solid understanding of target groups** – A solid understanding of target groups is essential for effective tool design. As the main audience, stakeholders such as tourists and tourism operators are at the center of the PEAR tools. To ensure relevance, higher response rates, and successful implementation, the design team must be well informed about these groups. This knowledge enables the selection of appropriate interaction methods, question formulation, and timing. Incorporating insights into the tool's target groups has proven crucial for successful implementation. **2. Adaptable to local context** – Tools should be adapted to the local context, including local language and culture. As the tools targeting tourism stakeholders are usually implemented during the tourist season, the team should be flexible in organization of interviews with the seasonal workers (i.e. boat and dive operators), scheduling them in times or days when they are more available.

[1] PEAR is an acronym used in this report. It reflects the twin aims of the tool tested: to elicit respondents' perceptions and to raise awareness, either with the same tool or in sequential steps.

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	perceptions of the MPA and increase stakeholder awareness, to improve compliance with MPA regulations. In the **Katič MPA**, tool testing aimed to raise awareness and evaluate perceptions of the MPA between tourists and tourism operators, with a focus on recreational boating activities and jet-ski use in the vicinity of the MPA. In the **Littoral Seino-Marin** MPA, tool testing aimed to raise awareness and increase acceptability of the MPA among the local residents and local government officials, corresponding to a need for raising awareness and acceptance of the MPAs among the French Natura 2000 network – Channel North Sea.	**3. Communication and presence in the field is crucial** – It was evident that success greatly depends on strong, regular communication with local actors. The presence of an expert team dedicated to supporting the MPA staff in the design and implementation of tools greatly benefits the success of implementation. **4. Relevance and usability across MPA stages** – PEAR tools were proven particularly useful in early stages of the MPA development and are effective in areas where stakeholder engagement is difficult. They are also useful in MPAs that have already been established. They have strong potential for following the perception trends over time. Additionally, PEAR tools showed strong potential in understanding perceptions of different stakeholders and identifying potential solutions for conflicts between various users in the area (i.e. tourism and MPA).
	A **Public Perception Survey** and **Facilitated Discussion Groups** were two tools tested in **Dundalk Bay**, Ireland, with an aim to support the MPA planning process and identify management priorities. A **Public Perception Survey** (focused on the general public) was designed and implemented to assess how coastal residents' perspectives of the site influence their support for marine spatial planning. **Facilitated Discussion Groups** (focused on key stakeholder groups) were designed and implemented to explore stakeholders´ perceptions of the area and to support discussions on its management. The tool consisted of two	In general, tools proved **relevant for identifying public priorities for marine spatial planning**, and, in this specific case, for informing the MPA designation process in Ireland. <u>General insights from Public Perception Survey testing:</u> **1. Design and implementation complexity** – Surveys require expertise and a significant time commitment during both the design and statistical analysis phases. Therefore, it is recommended that MPA managers carefully consider MPA´s needs before committing to a

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	stages – the first stage implemented through several homogeneous facilitated discussion groups (engaging single stakeholder groups) to understand stakeholders' relationship with the site, and the second stage implemented through one heterogeneous facilitated discussion group (engaging mixed stakeholder groups) to facilitate inter-stakeholder discussions on the management of the site.	public survey and consider hiring external experts for effective implementation. **2. Adaptable to new contexts** – While adaptation to new contexts is possible, it requires significant tailoring to reflect local issues and priorities. **3. Co-creation and communication enhance implementation** – Collaboration with local stakeholders ensures the tool's relevance and successful implementation. In this case, the survey was informed by previous community-based research, while local stakeholder group representatives assisted with survey dissemination, boosting participation, and response rate. General insights from Facilitated Discussion Groups testing: **1. High relevance for stakeholder engagement** – The tool effectively addresses the need for a continuous stakeholder engagement framework and helps identify key priorities to inform marine spatial planning and MPA designation processes. **2. Co-creation is essential** – Early involvement of local community groups in adapting the design and implementation of the tool to the local context builds trust and strong relationships with and among stakeholders. **3. Stakeholder perspectives inform MPA design and management** – The tool captures stakeholders' views and can highlight common priorities for future management. It also lays the basis for more technical

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		activities, such as GIS-based spatial planning or co-creation processes for MPA design and management. **4. Careful planning and time commitment are required** – Users should allocate sufficient time for both stages of tool implementation. In stage one (engaging single stakeholder groups), as a basis, stakeholder mapping should be done to ensure reaching as many groups as possible. This allows for broad learning and understanding of the situation. In the second stage (engaging mixed stakeholder groups), it is recommended to limit the size of groups to ensure balanced discussion and inter-stakeholder dialogue. **5. Continuous engagement is recommended** – Organization of facilitated discussion groups regularly (e.g., once or twice a year) ensures ongoing engagement. In-person meetings are preferred for relationship building, though digital can expand participation. **6. Professional facilitation improves outcomes** – Hiring a neutral, external facilitator - at least for initial sessions - ensures balanced discussions, mitigates conflicts, and fosters constructive exchanges.
	Participatory stakeholder process in the revision of the MPA zonation was implemented in **Capo Carbonara MPA**, Italy, to ensure that the proposed changes in zonation are both environmentally effective and socially acceptable. Using QGIS, ecological, socio-economic, and political data were integrated to produce a final zonation proposal that incorporated key aspects and stakeholder inputs.	<u>General insights from the participatory stakeholder process testing:</u> **1. Stakeholder engagement is crucial** – The structured involvement of the SEG was vital for maintaining transparency, inclusiveness, and building trust throughout the process, and to ensure social acceptance of outcomes.

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	The process was designed to support informed, inclusive, and sustainable decision-making, and involved the following steps: • preparation of relevant data and documents as a basis for the zonation discussion, with the help of external environmental experts; • organization of in-person meetings of experts and the MPA management authority to prepare the first proposal of the new zonation; • implementation of targeted workshops with key stakeholders to develop additional zonation proposals reflecting specific need; • public workshop with local stakeholders to present the final zonation proposal. Based on the previous steps, the final zonation proposal will be submitted to the relevant Ministry for approval.	**2. Effective communication supports participation** – Participation levels may vary, with some stakeholders actively contributing, and others being passive. This highlights the challenge of sustaining engagement even in voluntary groups. Using both formal (emails) and informal (calls, messages) communication channels, alongside in-person meetings, helps foster dialogue and responsiveness. **3. Technical tools support decision-making** – Tools like QGIS and printed maps were instrumental in facilitating data-driven discussions and visualizing zoning proposals during workshops in Capo Carbonara MPA. It is therefore recommended to provide user-friendly formats of technical tools to make data understandable and usable by all stakeholder groups. **4. Value of expert input** – External experts, involved early in the process, provided essential ecological insights that helped shape environmentally sound proposals for new zonation. It is therefore advisable to maintain ecological conservation as a foundation, while openly addressing stakeholder concerns to ensure proposals are both scientifically valid and socially acceptable. **5. Careful and long-term planning is essential** – Many key activities are time-intensive and require well-structured preparation in advance. It is important to allocate sufficient time and resources for stakeholder engagement, technical assessments, and data analysis.

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	Site-level Assessment of Governance and Equity[2] **(SAGE) tool** was tested in **Torre Guaceto MPA**, Italy, aimed at enabling MPA management authority to improve governance and equity in the MPA management, especially in the process of proposing MPA zonation changes. SAGE is a tool for assessing the governance and equity of protected areas using a framework of ten principles of effective and equitable governance based on the IUCN framework of governance principles for protected areas. It enables site-level actors to improve both social and conservation outcomes of the MPA governance. The tool was implemented through (i) stakeholder mapping, (ii) survey and interviews directed towards stakeholders, (iii) analysis of survey scores and qualitative interview feedback. The last step would be to implement an interactive workshop with stakeholders included in the process to reflect on findings and the SAGE tool application.	<u>General insight from the SAGE tool testing:</u> **1.** The tool is found **helpful for structuring participatory processes** and has potential for broader application, being adaptable to local context. However, its bottom-up approach requires a preparatory phase, such as stakeholder analysis, mapping, and context-specific adjustments, based on the unique conditions of each site. **2.** The tool has great potential to **uncover important governance and equity issues in MPA management and suggest potential solutions**. Thus, it is more applicable in existing MPAs aimed at enhancing equity and improving overall governance. **3.** For successful implementation, the SAGE tool **must respond to genuine governance needs recognized by both MPA managers and stakeholders**. This can be particularly challenging in cultural contexts where MPAs are governed primarily through top-down approaches, or where robust stakeholder engagement systems are already in place. Crucially, the need for the SAGE tool should be identified jointly by managers and stakeholders to ensure a shared understanding of its value for their MPA. <u>Other insights from the SAGE tool testing:</u> **1. In-depth interactions and discussions with stakeholders are required** – Communication with local actors enables understanding of the tool´s

[2] https://www.iied.org/site-level-assessment-governance-equity-sage

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		implementation process and creates space to discuss results and potential solutions. Keeping stakeholders involved throughout the process strengthens the effectiveness of the process but also ensures that governance and equity considerations in MPA management are properly recognized and addressed. **2. Local facilitators play a key role** – To alleviate challenges in building connections with local actors, it is necessary to ensure local support throughout the process. Local facilitators are crucial for adapting the tool to the local context. They help with verifying principles, prioritizing survey questions, and adapting the language to make sure the tool resonates with local needs and interests.
	The **Justice Deliberation and Assessment tool** was tested in the **Finnish MPA network** and validated in the **Baltic Sea MPA network.** The tool is designed to support informed decision-making and foster conflict resolution by incorporating social and cultural dimensions into marine nature conservation governance. Participatory methods and facilitated discussion on how to use and develop the tool were applied, involving both Finnish and Baltic Sea Region experts. Tool testing and validation processes included the following steps: • preliminary interviews about Finland's nature conservation planning and management practices, and a questionnaire to scan perceptions on needs for tools and methods;	<u>General insight from the Justice Deliberation and Assessment tool testing:</u> **1.** The process revealed that **many conservation practitioners lack both the capacity to use the tool effectively and the necessary expertise in social and economic dimensions**. Targeted training programs would therefore be highly beneficial, particularly for marine managers leading stakeholder engagement processes during MPA designations. **2.** Concerns were raised about **potential misuse of justice assessments and a need to harmonize different justice-related instruments** to reduce fragmentation and improve consistency in their application. As a recommendation, it is considered essential to present the broader conservation context

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	• two workshops with Finnish national experts – first to collect views on needs for tools and methods to develop further Finland's nature conservation practices, and second to collect feedback on a draft tool; • a workshop organized as a part of HELCOM Working Group on Biodiversity, Protection and Restoration State of the Environment and Nature Conservation, to collect views from Baltic Sea level nature conservation experts, focused on the tool´s relevance, value and applicability; • a larger survey after the first workshop with Finnish national experts to gather views about important topics related to the equity of nature conservation at sea.	together with the different dimensions of justice as an integrated whole, rather than addressing them in isolation. This reduces the risk that assessment results are interpreted selectively and used politically purposefully. **3. At the level of MPA networks, this tool proved to have potential for broader application and being policy relevant.** The latter is evidenced by its incorporation into the Roadmap for Finland's MPA network, and interest from the HELCOM Working Group on Biodiversity, Protection and Restoration State of the Environment and Nature Conservation to include consideration of justice and equity when updating HELCOM´s recommendation on MPA planning and management.
Ecosystem services valuation (corresponding to Task 2.3 tools)	**Ecosystem services valuation tools** – **Best-Worst Scaling**, **Order Ranking** and **Contingent Valuation Method** were tested in **Littoral Seino-Marin MPA**, a pilot site within the **French Natura 2000 network – Channel North Sea.** The aim of this process was to raise awareness and foster acceptance of the MPA and its ecological aspects among the socio-economic actors within the MPA. Testing of ecosystem valuation tools targeted tourists and shellfish farmers, who were perceived as stakeholder groups having a low level of awareness of ecological issues. All three methods were used with a tourist target group. Best-Worst Scaling was used to identify preferences for marine ecosystem services, while Order Ranking, as a complementary method, captured preferences for recreational activities within the MPA. The Contingent	<u>General insights from the ecosystem services valuation tools testing</u>: **1. Engaging sector representatives is a key** to validating the survey and reaching relevant stakeholders. **2. The tools are relevant for the early-stage MPAs** – Tools proved useful for raising stakeholder awareness in early MPA management stages, when the public perception of the MPA is still relatively low. **3. Relevant for the single MPA realm** – It was agreed to test the tools on a single MPA scale, rather than the whole network, which allowed greater flexibility and involvement of all relevant actors within the project timeline.

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	Valuation Method was applied to gain insights into the financial or voluntary contributions tourists are willing to make in support of marine conservation. Best-Worst scaling was also applied to shellfish farmers as a target group, to assess perception and valuation of ecosystem services, benefits, and limitations that the MPA poses on their activities.	**4. Adapting the tools to a local context can be challenging** – Framing ecosystem services valuation scenarios that felt realistic and meaningful to the target stakeholder groups (tourists and shellfish farmers) was challenging. After the tool testing experience, the Contact Point recommended adaptations such as choosing only one method (Best-Worst Scaling) and shortening the survey for easier implementation in the local context.
	Ecosystem services valuation tools – Expert-based assessment and **Participatory mapping** were tested in the **Danish Wadden Sea MPA,** to support management decisions by reflecting the ecological and social value of the area. The tool testing process supported ecosystem service mapping for spatial planning as well. Expert-based assessment was used to illustrate the complex interlinkages between social and ecological systems within the MPA to inform financial decision-making. Participatory mapping was conducted to understand why locals and tourists value the Danish Wadden Sea. Spatial ecosystem services maps were created to support more effective MPA management.	<u>General insights from the ecosystem services valuation tools testing:</u> **1. Expert-based assessment is valuable but time- and resource-intensive** – The tool requires 9 - 12 months for effective implementation in this context. Success of the tool depends on thorough expert preparation, basic knowledge of local species and programming skills for processing results and diagrams. Avoiding excessive detail is important to prevent scoring fatigue and data gaps. **2. Expert input is necessary** – Participatory mapping was co-developed with the experts and the MPA manager, ensuring local relevance and capturing why communities and visitors value the MPA. **3. Participatory mapping is a powerful tool for engaging stakeholders and capturing local knowledge.** As well, ensuring diverse participation helps reduce sampling bias. **4. Careful planning and tailoring the results to support decision-making** – The results should be tailored to

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		support spatial policy and clearly communicated to the decision-makers. **5. Combining different tools may be necessary to address broader MPA needs** and provide comprehensive insights for management.
	Economic valuation tools – Semi-structured Expert Interviews and **Benefit Transfer** were tested in **Vlaamse Banken MPA** in Belgium. The purpose of tool testing was to evaluate whether benefit transfer could serve as a practical and credible tool to guide decision-making in MPAs, using the restoration of oyster reefs in the Vlaamse Banken MPA as a case study. The aim was to make ecosystem services tangible in economic terms, thereby addressing the MPA manager's need to improve stakeholder dialogue and support policy development.	<u>General insights from the economic valuation tools testing:</u> **1. Expert Interviews are valuable but resource-intensive** – Expert Interviews are accessible, informative, and support stakeholder dialogue, enabling the selection of the most relevant ecosystem services for further economic valuation. However, the success of those tools depends on careful planning, skilled facilitation, and sufficient time for data processing and analysis. **2. Tools support awareness-raising but need site-specific data for credibility** – The tools provided a good basis for further work and highlighted the need for valorisation of biodiversity and understanding ecological and social values of MPAs. However, integrating local, site-specific data is essential for the outputs to be used in decision-making processes. Due to a limited availability of transferable, site specific valuation studies, the results were perceived as illustrative rather than definitive, limiting the impact on policy discussions and management decisions. **3. Stakeholder involvement enhances tool development** – Regular and ongoing communication with MPA managers and stakeholders throughout the

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		testing process facilitated co-creation and ensured the tool was aligned with user needs. **4. Gathering expert feedback on the results is necessary** – Due to the time constraints, the team could not obtain feedback on the economic valuation tool from the interviewed field experts. Such a feedback session should be planned as a follow-up step to verify the accuracy of expert input in the results and address any differing perspectives.
Improving financial sustainability of the MPA (corresponding to Task 2.4 tools)	Several **tools supporting financial management of MPAs** were tested, refined and validated in **Capo Carbonara MPA, Torre Guaceto MPA, Isola delle Femmine MPA, Baltic MPA network, and SBZ 1-3 MPAs**. Those tools included: • Guidebook for applying a business approach to financial management of MPAs, developed by the Blue4All Task 2.4 team at an early stage of the tool testing phase; • MedPLAN Business Planning Tool, focused on financial gap prediction and closing strategies (MedPAN et al., 2023)[3]; • Financial Mechanisms Selection Tool (Bohorquez et al., 2022)[4], focused on selecting appropriate financial	<u>General insights from the financial tools testing:</u> **1.** The **implementation of financial tools is perceived as requiring technical expertise** and solid understanding of the MPA's financial management, resource allocation, and relevant regulatory frameworks. Consequently, support to the MPA manager to implement the tools has proven essential, either from the financial staff within the MPA (if existing) or from external experts. **2. Becoming familiar with and applying financial tools demands time and effort** – The input needed depends on how well the tool aligns with the current practices and the level of detail needed for the analysis. In

[3] MedPAN, MAP, SPA/RAC, UNEP, WWF, Vertigo Lab & BlueSeeds (2023). MedPLAN Business Planning Tool. https://medpan.org/en/training/business-planning-mediterranean-marine-protected-areas.

[4] Bohorquez, J. J., Dvarskas, A., Jacquet, J., Sumaila, U. R., Nye, J., & Pikitch, E. K. (2022). A New Tool to Evaluate, Improve, and Sustain Marine Protected Area Financing Built on a Comprehensive Review of Finance Sources and Instruments. *Frontiers in Marine Science*, *8*, 742846. https://doi.org/10.3389/fmars.2021.742846

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	mechanisms and financing sources for MPAs, and matching sources to develop a financial strategy; • Blue4All Financial Planning Tool, developed by the Blue4All Task 2.4 team, built on the MedPLAN and Bohorquez tools. The process involved the following: • presenting the Guidebook, MedPLAN and Bohorquez frameworks to Living Labs and getting feedback on their usability and functionality; • bilateral meetings with Living Labs, to collect oral feedback, discuss written feedback or provide guidance on specific sections of tools; • co-creation of a new, more user-friendly tool for financial planning in MPAs – Blue4All Financial Planning Tool – drawing on and adapting elements of MedPLAN and Bohorquez frameworks, and incorporating the Guidebook developed within Blue4All. The tool is oriented around three complementary fronts: (i) assessing the financial health of an MPA, (ii) identifying and selecting suitable new revenue streams, and (iii) developing a coherent financial strategy; • validation of the newly developed tool.	addition, tool implementation should be aligned with the annual financial planning cycle. **3.** The tool demonstrated **strong strategic value** by helping identify administrative gaps, supporting budget planning, identifying potential new financial sources, and informing more effective decision-making within the MPA. **4.** The **environmental and ecological impacts of financial tools and mechanisms** should not be overlooked when developing financial strategies. Conservation objectives could be given a more prominent role within the tools. **5. Financial tools are primarily designed for the MPA management authority as the main custodian of relevant data.** As a result, the involvement of SEG members and other stakeholders in the Blue4All testing process was limited, even though the tool includes a step for stakeholder involvement. Nevertheless, it was concluded that while the outputs of the financial tools can strengthen accountability with stakeholders, they also hold significant potential to engage them more actively in financial management. This could contribute to closing financial gaps and fostering the development of new business models. Achieving this, however, will require time, resources and commitment from both MPA managers and stakeholders.
Supporting decision-making in planning and management to reach	**Cumulative Impact Assessment tools** – To advance toward a universally applicable Cumulative Impact Assessment solution for Europe's marine areas and deliver tools that	<u>General Insights from the PW4B tool testing:</u> **1. Highly relevant across various contexts** – The tool was found relevant to support informed decision-

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conservation goals (corresponding to Task 3.3 tools)	meet the real needs of planners and decision-makers, Blue4All is working towards refining methodologies, integrating feedback, and ensuring practical usability across regions. A Cumulative Impact Assessment tool, **PlanWise4Blue (PW4B),** was tested in five Living Labs – three in the Baltic and two in the North-East Atlantic. In **Väinameri and Väike Väin MPAs** in Estonia, PW4B aimed to inform decision-makers by assessing cumulative impacts on protected habitats and species. In parallel, the project's efforts focused on enhancing the tool's data availability to better address user-specific needs in those areas, thereby strengthening the role of Cumulative Impact Assessment tools in supporting decision-making processes. In the **Danish Wadden Sea,** a singular MPA that is part of a Trilateral Wadden Sea UNESCO World Heritage site, PW4B was applied to assess the cumulative impacts of human activities and pressures on natural values (seagrasses) to meet the needs of planners and decision-makers at the national and international level. Within **Ireland's MPA network Expansion** process, PW4B was tested as one of the tools that might support the identification of candidate MPAs in Ireland's MPA network expansion process. In the **Baltic Sea MPA network,** several key needs were identified, which could be addressed through the Cumulative Impact Assessment tools. These include: (i) addressing data gaps on conservation targets and threats,	making in MPA planning and management, as well as in the MPA designation processes, where it was used to identify candidate future MPAs. **2. Data integration is a resource-intensive process and requires expert input** – Sourcing and incorporating spatial data layers into the tool requires a lot of time, expertise, and availability of relevant data. Continuous expert involvement from the start is needed for preparing the tool with relevant data and information about the area. This ensures the best possible output of the tool application. **3. Involving stakeholders is key for the relevance and usability of the tool** – Collaboration with the SEG is important to guide the selection of important species and habitats for Cumulative Impact Assessment tools. Involving SEG enables local relevance and helps answer stakeholders' needs. Implementing workshops with key stakeholders facilitates their understanding of the tools, leading to better integration of their inputs and higher acceptance. <u>General insights on validation of PW4B tool in the context of the transboundary MPA network (Baltic MPA network):</u> **1. Conventional tool testing is not applicable in the Baltic MPA network** – WP3 developed the Protocol for the implementation of tool testing within WP3. Tool testing within WP3, as defined in the Protocol, consists of the following steps: (i) definition of a clear aim and a relevant context to achieve it; (ii) data gathering and

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	(ii) developing strategic work on connectivity and coherence, and (iii) designating areas of strict protection. Additional priorities involve enforcing fisheries' exclusion within protected areas, managing competition for space among different sectors, restoring reefs, reducing noise, and tackling the impacts of climate change. Interest in implementing the Cumulative Impact Assessment inside and outside of MPAs across the Baltic Sea MPA network was expressed. Following the initiative implemented in the MSP4BIO project, a **survey** was developed by WP3 for the HELCOM Expert Group on Marine Protected Areas to improve the incorporation of ecological and environmental data into MPA networks design and management, which served as a validation of PW4B in the MPA network context.	expected representation of the outputs, and (iii) tool selection, formal testing, and feedback analysis. This approach was found **not applicable** for tool testing in the context of the Baltic MPA network because of the high-level, top-down approach at place at the transboundary MPA network level. Minimal interaction with stakeholders hindered deeper involvement in the tool testing process. The main interactions were organized with HELCOM thematic working groups. WP3 presented the Cumulative Impact Assessment tools to HELCOM Expert Group on Marine Protected Area and collected validation of the tool in the survey form. The Group´s feedback will be integrated as part of the upcoming deliverable 3.3.
	Non-indigenous Species Effect Assessment Tool (NEAT) – a web-tool upgraded and upscaled in the frame of the Blue4All project to assess the ecological and environmental impacts of non-indigenous species. The NEAT tool was tested at the MPA network level in the **French Natura 2000 network – Channel North Sea**. This Living Lab participated in the development of the NEAT tool from a pre-established universal framework to address the growing threat of non-indigenous species in the MPA network area.	<u>General insights from the NEAT tool testing:</u> **1. Strong potential for application at the MPA network level** – As the only environmental tool tested at the MPA network level, NEAT proved especially valuable, using EU-level data while remaining responsive to local MPA needs. It aligns well with Living Lab principles and shows strong potential for future applications across the MPA network, particularly for anticipating climate-related biodiversity challenges. **2. The transparent co-creation process was crucial for successful tool application** – The tool's co-creation process was marked by clear communication, transparency around methodology, and adjustments based on feedback. Involving ecological and

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		environmental data is an iterative and continuous process. Each modelling and prioritization step has been validated in collaboration with the SEG or local experts, who will also be involved in the presentation and validation of the results.

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2.4.1 Key lessons learned and recommendations for future projects based on the Blue4All tool testing and validation experiences

The following lessons and experiences from tool testing and validation within the Blue4All offer valuable insights and recommendations for future activities in other projects:

- Maintaining regular updates throughout all stages

  It is essential to keep all involved parties informed at every stage of the tool testing and validation process – design, implementation, and finalization. Regular updates ensure that WP members, Contact Points, and Living Lab representatives stay aligned on progress, selected tools, and methodologies. These updates also facilitate the exchange of experiences and lessons learned, fostering collaboration and collective problem-solving. Organizing frequent meetings and encouraging and facilitating open dialogue among involved parties supports this ongoing communication.

- Conducting targeted consultations to understand local contexts

  Beyond the findings from the Baseline and Needs Assessment, it is crucial to organize targeted consultations among WP members, Contact Points and Living Lab representatives. These discussions help to understand the specific context of each Living Lab and identify the particular needs to be addressed, as well as existing capacities and expertise within the Living Lab. This approach ensures that tool testing and validation is fully adapted to the requirements of each Living Lab.

- Thorough preparation for tool testing and validation

  Thorough preparation for tool testing and validation in the Living Labs is essential for the successful implementation of the process. This involves anticipating the required expertise, time, and human resource capacity – both from the WP team and within the Living Labs themselves. Some Living Labs may need substantial support, which should be considered during both the planning and implementation phases. Involving specialized experts can help ensure that the tools are applied effectively and appropriately within each specific Living Lab context.

- Involving key stakeholders early in the process and ensuring flexibility in adapting to changing circumstances

  Early involvement of all relevant stakeholders – particularly Contact Points and MPA representatives – is essential, especially during the design phase of tool testing and validation activities. This ensures that needs are clearly defined, the focus of the process is well aligned, and potential challenges are anticipated. Early engagement also builds trust, fosters transparency, and increases the process's adaptability when changes are required.

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At the same time, the dynamic nature of many MPAs – including factors such as staff turnover and policy shifts – requires a high degree of flexibility. Activity plans, resource allocation, and expert involvement must be regularly adjusted to respond to evolving needs and circumstances. In this context, maintaining transparency and continuous communication with key stakeholders is crucial to ensure that the process remains responsive, inclusive, and effective.

- Adapting stakeholder engagement as the project develops

  In the Blue4All, SEGs were established before the full scope of tool testing and validation was defined. As project activities evolved, it was important to remain open to involving new stakeholders who could contribute to – or benefit from – the project. Communication strategies with SEG members should be regularly reviewed and refined, clearly distinguishing between those requiring direct involvement in tool testing and validation, and those who only need to be kept informed due to their limited activity or indirect relevance to the process. Proactive stakeholder engagement throughout the project helps ensure inclusiveness and transparency.

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3. Living Lab involvement and Stakeholder Engagement Groups

Collaboration with the Living Labs was essential in all co-creation processes in the Blue4All. From the Baseline Assessment and Needs Assessment to tool testing and validation, MPA managers and stakeholders provided information about their Living Labs to the Contact Points. WP4 collected this information to feed into different WPs. The flow of interactions and communications is explained in detail in the previous deliverable D4.2 ″Living Lab testing package″.

To enable a bottom-up approach within the co-creation with the Living Labs, WP4 organized the establishment of SEGs in each Living Lab. This process is described in detail in the deliverable 4.3 ″Establishment of Stakeholder Engagement Groups″. The Contact Points played a key role in SEG establishment, from organizing stakeholder analysis in their Living Lab, presenting the project to the stakeholders and inviting them to join the SEG. At the SEG establishment meeting, the Contact Points organized the signing of the Letter of Intent among all SEG members to formalize their involvement. Each Contact Point acted as a coordinator of all activities in their respective Living Lab, being responsible for organizing SEG meetings, adapting the project surveys and materials to local contexts, and involvement of MPA representatives and SEG members in the project.

In some Living Labs, robust stakeholder engagement processes were already in place in the form of working groups, expert groups, advisory bodies, or stakeholder tables. When existent, those bodies were invited to join Blue4All project activities in the role of SEG for their Living Lab. Special care was taken to prepare project activities and interactions with the Living Labs well in advance to fit into those groups' meeting schedules. The project utilized collaboration with existing working group in Finnish national MPA network, with HELCOM's expert groups within the Baltic Sea MPA network, three advisory bodies in Platamuni, Katič, and Stari Ulcinj MPAs, the fisheries table in Torre Guaceto MPA, and with the stakeholder engagement group within the Belgian MPAs Vlaamse Banken and SBZ 1-3. The French Natura 2000 network – Channel North Sea had a steering committee for each of the 38 MPAs in the Natura 2000 network. As it would be impossible to align the project timelines with as many working groups, their Contact Point established a new SEG at the network level for the Blue4All.

In the Danish Wadden Sea MPA, Capo Carbonara MPA, Väinameri and Väike väin MPAs, Capo Gallo – Isola delle Femmine MPA, and the Irish MPA network expansion Living Lab, the new SEG was established as a part of Blue4All. SEG was not officially established in Dundalk Bay, as initially it has been designated as an Information Site within the Blue4All and therefore not included in the SEG establishment processes. However, elements of stakeholder engagement were integrated into the tool testing within this site.

In the Otranto-Leuca Living Lab, a formal SEG could not be established in the field due to the MPA still being in an early designation phase. The current priority for Otranto-Leuca was to raise stakeholder awareness and acceptance of the future MPA. This was organized

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through stakeholder engagement processes guided by the Municipality of Otranto as part of the tool testing and validation processes.

The level of stakeholder engagement varied across the project and among the different Living Labs, influenced by the MPA development phases, stakeholder acceptance, ongoing MPA processes, stakeholder availability, interest, and understanding of the project's objectives.

SEGs played an active role during the Needs Assessment, contributing through workshops, meetings, and interviews. In the tool testing and validation processes, relevance of the tools for different stakeholders of the MPA varied depending on the nature of the tool. Stakeholders who were direct users, or stakeholders with knowledge and expertise critical to tool implementation, were actively involved in tool testing implementation through workshops, regular meetings, and feedback sessions with WP2 and WP3 teams. Those not directly using the tools, or without direct interest or expertise, were consulted only on the specific aspects of tool testing relevant to them and informed through newsletters and presentation sessions.

In addition to fostering bottom-up processes in the Living Labs, the project also recognized the critical importance of engaging high-level stakeholders such as ministries and higher officials. Their involvement has a great potential for amplifying the project's impact at the national level and shaping policies, for instance, by promoting the integration of relevant tools and practices into MPA governance. Engaging these stakeholders would facilitate promoting the use of the Blueprint platform on a broader scale and securing the Blue4All legacy. In some Living Labs, high-level stakeholders were already part of existing stakeholder groups, which was an advantage as their early involvement in the project was ensured. However, inviting the higher-level stakeholders to participate in the project proved to be a challenging task as well, which is further elaborated in the reflections on challenges and key learnings presented in the following chapter.

3.1. Reflections on the collaboration with the Living Labs and SEGs

To reflect on the quality of involvement of Living Labs and SEGs in Blue4All activities, address the challenges and seek solutions, two dedicated workshops were organized at the Blue4All consortium level:

1. Online feedback session hosted by WP4 in December 2024;
2. In-person workshop in Tallinn in January 2025, hosted by WP4 during the General Assembly.

Partners involved in the processes with the Living Labs – Contact Points, Living Lab representatives, and WP task leads in the Blue4All – were brought together in the online feedback session. Participants were divided into three groups by sea basins: Baltic, North-East Atlantic and Mediterranean. The discussion was focused on the project's collaboration with the Living Labs, SEG engagement and plans for SEG involvement in tool testing and

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validation processes. Discussion topics and questions were prepared in advance and shared with the participants, encouraging them to reflect on the specific challenges within each Living Lab. For the collection of input, an online brainstorming platform Mural was used.

During the in-person workshop in Tallinn, all partners were divided into four groups with approximately 12 participants, and a facilitator in each group. Each group reflected on the processes in 3 Living Labs. The workshop focused on the Living Lab and SEG engagement in the Blue4All, discussing the main challenges and possible solutions.

WP4 compiled the main identified challenges and key learnings from the two reflection workshops. Findings are shown in Tables 6 and 7. In Table 6, challenges and key learnings from the communication and co-creation processes with the Living Labs are described.

Table 6. Communication and co-creation with the Living Labs – identified challenges and key learnings

CHALLENGE	DESCRIPTION	KEY LEARNING
Timelines mismatch	Project timelines and stakeholder timelines are often not aligned, making it challenging to deliver all stakeholder inputs in time.	To successfully organize activities that require inputs and engagement from the Living Labs, the Contact Points need to be involved timely in the planning of those activities, ideally two months in advance.
Requesting input on short notice	In the earlier project phases, some inputs were requested from the Living Labs on short notice and not in coordination with WP4. This approach lacked prior planning and limited the Contact Point's ability to gather relevant stakeholder input.	All requests for input from the Living Labs should be coordinated through WP4. Planning those requests together with the Contact Point at least two months in advance ensures enough time to set up interactions in their Living Lab. WP4 is responsible for coordinating and informing on all the upcoming activities and efficient engagement as part of the WP4 monthly meetings. Those meetings also provide opportunities to clarify details, give feedback, and align the Contact Points and task leads on expectations.
No feedback on the survey results	Living Labs provided inputs for the Baseline and Needs Assessments, but the project team did not share the results of the assessments soon afterwards.	Stakeholders who provide information for the research project should always be informed about the results, to ensure accuracy and reinforce ownership of the process. In the BA4, the aim of the Baseline and Needs Assessments was to inform

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		WP2 and WP3 to organize tool testing and validation processes in each Living Lab. Therefore, the results of the Baseline and Needs Assessments were not immediately shared after the survey, but at a later stage.
No opportunity to proofread materials	The Contact Points, who provided Living Lab-related information to project deliverables, were not always involved in reviewing those deliverables. As a result, the opportunity to proofread and validate their inputs was sometimes overlooked.	When producing deliverables and communication materials, the project partners should reach out to the Contact Points not only to provide information, but also to proofread the final version and ensure all the information is correct and in line with the MPA/MPA network reality. This was addressed during the Needs Assessment and tool testing and validation processes.
The MPA network realities were not accounted for early enough	The Baseline Assessment surveys were designed for single MPAs and not for MPA networks. As a result, important information about MPA network realities was overlooked. MPA network realities were included only at a later stage, making it difficult to adapt the survey.	Involving the Contact Points early in survey preparation enables the development of targeted questions that reflect the MPA network context. This approach was adopted in the Needs Assessment and tool testing and validation processes where the Contact Points were involved early on. Early collaboration with the Contact Points allowed tailoring interactions with the Living Labs to the MPA networks' specific contexts.

In Table 7, challenges and key findings from the stakeholder engagement processes in the Living Labs are presented.

Table 7. Stakeholder engagement processes within the Living Labs - identified challenges and key learnings

CHALLENGE	DESCRIPTION	KEY LEARNING
Difficulties involving stakeholders from the start	It was challenging to engage all important stakeholders during the SEG establishment phase, particularly the high-level stakeholders. This was due to a mismatch between project timelines and stakeholder priorities. Furthermore, the	The evolving nature of the project and a lack of definition of activities in the Living Labs at the early stages were evident. Therefore, the Contact Points were invited to get the key stakeholders on board another time, after the SEG was established and the Needs Assessment process

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	evolving nature of the project did not allow all activities to be exactly defined in advance. As a result, a lack of understanding and interest in participation occurred in the early stages among some of the key stakeholders.	defined the Living Lab's needs and priorities. At that stage, it was clearer how the Living Labs will be involved through tool testing and validation. Now the Contact Points had an opportunity to reach out again to the key stakeholders and propose once again to join the project in the phase of tool testing and validation.
Difficulties involving high-level stakeholders in the project	The main challenges in involving high-level stakeholders were: (i) aligning the project with their schedules, and (ii) fitting into their current priorities.	High-level decision-makers often have different priorities than MPA managers, which means surveys and engagement approaches must be adapted to their context. Their involvement should be strategic, making use of the communication platforms they regularly use and by identifying key actors within this group to establish ongoing dialogue. It would be essential to clearly communicate how Blue4All's outcomes contribute to more effective, efficient, and resilient MPAs and networks. When talking to high-level decision-makers, the project should emphasize how their involvement in developing the final Blueprint platform could advance their goals.
SEG members losing interest	If SEG members are not engaged and informed consistently, or don't see the value of the project for them, some of them tend to lose interest in the engagement.	Involving SEGs in the Needs Assessment was essential as it encouraged stakeholders in expressing their needs and ensured their understanding of upcoming activities. Their engagement from the early stages of the Needs Assessment reinforced that their input shaped the process and influenced future outcomes, helping sustain their engagement throughout the project. Furthermore, it was found equally important to keep the stakeholders

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		regularly informed throughout the process, to keep track and avoid losing interest.
Resistance towards direct stakeholder involvement in some contexts	While stakeholder engagement remains a valued principle, in some of the Living Labs, MPA managers identified areas where direct involvement may not be suitable at certain stages, e.g. due to the potential for disrupting ongoing processes.	Early stakeholder involvement in MPA processes supports compliance and achievement of MPA goals, but it should be recognized that, in specific stages, direct stakeholder involvement in certain management processes may need to be approached cautiously.

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4. Gender equality in EU marine research and MPA governance: Reflections in the Blue4All project inspired by the GenderWave tool

Blue4All seeks to strengthen stakeholder engagement through bottom-up approaches while exploring how incorporating gender equality awareness can help ensure these processes are equitable and inclusive. In marine research and MPA governance, inclusivity has gained increasing attention, with evidence showing that overlooking socially disadvantaged groups, such as those differentiated by gender or age, can limit communities' ability to innovate, adapt, and respond to growing pressures on natural resources (Lawless *et al.*, 2021). At the same time, advancing gender equality in science and innovation has become a key priority for the EU (European Commission, 2020).

Gender equality is a cross-cutting principle of Horizon Europe, aiming to eliminate gender and intersectional inequalities in research and innovation by addressing existing biases and systemic structural barriers (European Union, 2021). Advancing gender-responsive approaches in research and innovation is not only a matter of equity but also ensures that outcomes are relevant and beneficial to all groups (Kalpazidou Schmidt & Cacace, 2019). Since 2022, having a Gender Equality Plan in place has been an eligibility criterion for entities applying to Horizon Europe – specifically public bodies, research organizations, and higher education institutions (European Union, 2021).

Within Blue4All, gender equality was introduced as a cross-cutting theme rather than a dedicated task. On the initiative of WWF Adria, Wageningen University, and the Royal Belgian Institute of Natural Sciences, a core team set out to facilitate discussions on gender awareness across the project consortium. Through an online survey and a dedicated workshop at the General Assembly in 2025, the team explored how gender considerations are perceived within the project and within the Living Labs. Though the terms equality and equity were defined at the beginning of the workshop, as shown in Figure 2, gender equality refers to ˝equal treatment of all genders where everyone benefits from same support˝, and gender equity, on the other hand, referring to ˝everyone getting the support they need˝. A note is that these terms are used interchangeably in this text, as a distinction between them was not clearly made in the survey, or as part of the discussion notes.

This work was inspired by the GenderWave tool (Baltic Gender Project, 2020), which provides a framework for reflecting on and integrating gender perspectives into marine research and innovation. By fostering dialogue among project partners, GenderWave encourages critical reflection on both scientific practices and research content, offering inspiration for embedding gender equality into Blue4All's work.

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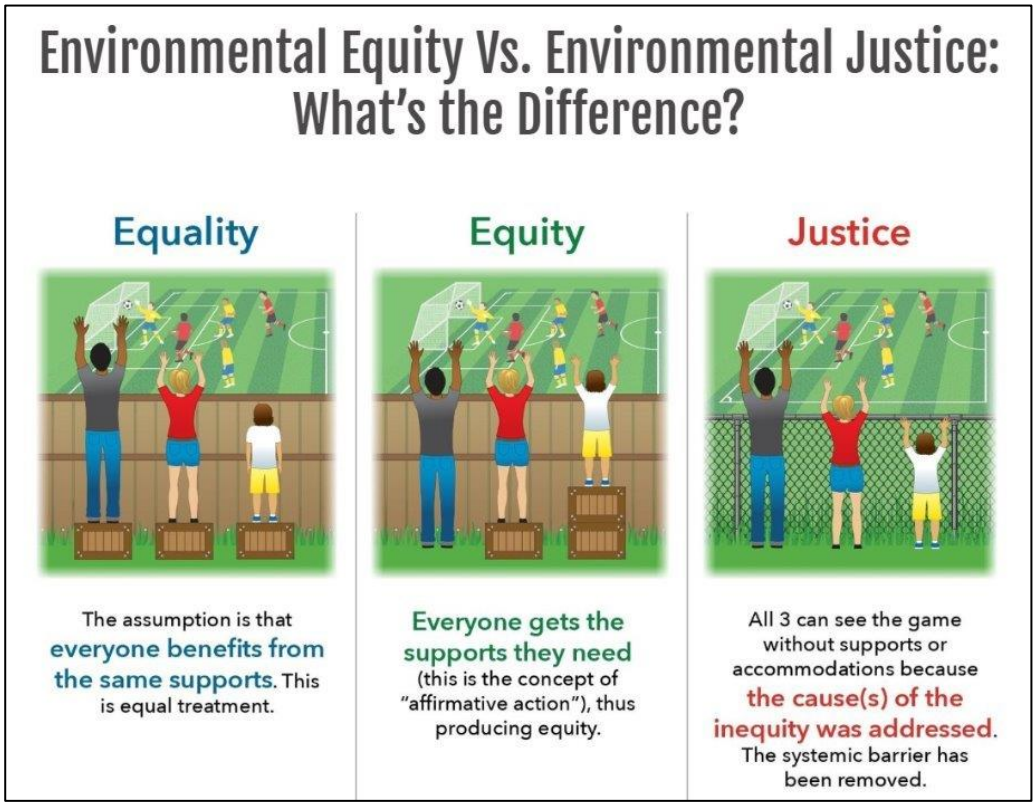
Figure 2. Differences between terms equality, equity and justice (MobilizeGreen, 2018)[5]



4.1. Survey

In December 2024, an anonymous online survey was conducted to gather project partners' perspectives on gender equality awareness within Blue4All and EU marine research projects. The survey received 41 responses and was designed to provide a snapshot of the consortium's views while also serving as a starting point for discussions later expanded during a workshop at the project's General Assembly in 2025.

Note: The gender equality plan for the Blue4All project was used in an imaginative sense in our survey and workshop. We imagined that such a document could be developed at the project level, not as a requirement, but as inspiration for discussing which are the most important and relevant gender equality-related measures and best practices that could be incorporated into the project.

Summary of the survey results are the following:

- Understanding the term gender equity/equality: Respondents associated equity/equality with concepts such as equal opportunities, equal rights, fairness, inclusivity, representation, balance, and respect between men and women.

[5] https://www.mobilizegreen.org/blog/2018/9/30/environmental-equity-vs-environmental-justice-whats-the-difference

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- Importance of gender equity in work: 78% of respondents considered gender equity important or very important in their work, while 22% viewed it as neutral or less relevant.
- Most important elements for a Blue4All gender equality plan: Participants were asked to prioritize key elements of a potential Blue4All gender plan, if they could be included in writing one. Most respondents prioritized equal employment terms and balanced gender representation in leadership. These were followed by inclusive tools, equitable resource allocation in stakeholder engagement, and avoiding gendered language.
- Interest in incorporating gender equity in the upcoming Blue4All activities: Over 50% of respondents were interested in incorporating gender equity/equality in tool testing, validation, or dissemination activities, around 25% were unsure, and 7% were not interested.

Respondents expressed different views on including gender equity/equality in Blue4All activities. They are the following:

- Strong support for inclusion: Some emphasized the need for balanced gender representation in leadership, fair allocation of scientific authorship, and tools that are accessible regardless of gender or age. They emphasized the importance of considering gender in research questions, methods, and practical work. Others noted that gender issues intersect with broader social dynamics and must be addressed thoughtfully, with expert guidance, to avoid superficial approaches.
- Conditional inclusion: Some respondents suggested incorporating gender equality depending on the Living Lab context and the relevance for stakeholders. They noted that tools might be biased, and addressing gender could be beneficial in the long term.
- Challenges and limitations: Respondents who opposed or were hesitant to include gender issues cited limited time, lack of direct involvement in tool implementation, or insufficient expertise. Some also indicated that their work primarily focused on ecological rather than social aspects.

4.1.1 Key learnings from the survey

The survey results indicate that the Blue4All consortium is a transdisciplinary group of scholars and experts from the natural and social sciences, as well as communication and project managers. Respondents exhibited a high level of awareness and understanding of the concept of gender equity and equality by providing diverse, but related keyword associations. The keywords address the existing definitions of gender equity and equality in literature and reveal how gender relations are produced and vary over time, place and culture (Castree *et al*., 2013; Adjei, 2024). A diversity of backgrounds and roles could be one explanation for the relevance attributed to gender equality in the work context. For instance,

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working as a marine ecologist (e.g., studying marine species characteristics and distributions) is likely to focus on ecological research rather than issues related to gender.

A key learning is that various aspects of gender equality awareness could be incorporated into EU marine research and MPA governance projects, some aspects more easily than others. For example, ˝avoiding gendered language˝ could be easily addressed in Blue4All, but ˝setting similar employment terms˝ might be more difficult, as Blue4All gathers partners from different countries, institutions, and experience levels, with different roles and employment conditions.

To conclude, incorporating gender equality in an EU research project such as Blue4All in a streamlined way is possible, but it must be carefully planned. This requires a good understanding of all project partners' contexts and comprehensive guidelines to guide both experts and non-expert groups in addressing gender equality in their work.

4.2 Workshop

Building on the results of a survey, an in-person workshop was organized at the project's General Assembly meeting in January 2025. The workshop provided an opportunity to discuss the survey findings and further explore gender equality awareness at the project and MPA level. As a result of the workshop, ways to integrate key insights into the ongoing testing and validation processes were discussed within the core team.

The aim was to gather consortium perspectives on gender equality awareness within the project and across MPAs, identifying enabling and constraining factors that could be addressed by Blue4All and as a part of future projects. Workshop participants engaged in breakout group discussions structured around gender perspectives at the project level and at the MPA level. The discussions led to interesting findings among the groups that were collected as key insights for achieving more equitable EU marine research projects and MPA governance processes in the future, presented in Tables 8 and 9. Table 8 compiles discussion points from the workshop that could serve as recommendations for including gender equality awareness at the project level.

Table 8. Enabling gender diversity at the project level - key insights and recommendations

RECOMMENDATION	DESCRIPTION
Ensuring equal employment terms	Ensuring equal opportunities in hiring, pay, and working conditions is crucial. **Responsibility** for these aspects **lies in the partner organizations** themselves. Groups suggested that each partner organization should have a gender plan in place, recognizing that this requires additional planning, effort and coordination in the project preparation phase. The group recognized that the standard for hiring opportunities, pay and working conditions should be ˝**equality**˝, and not ˝balance˝, or ˝similarity˝. A balanced interview panel was proposed as a key method to support fair decision-making.

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Aiming at balanced, merit-based leadership representation	The project should aim for gender balance in leadership roles, while maintaining merit-based selection. This would ensure project quality and **avoid ˝gender washing˝**.
Including gender equality considerations in the planning phase	Including gender in research design, planning of methods and outcomes and designing the project's gender plan.
Avoiding rigid application at the project level	A rigid implementation of the principle of gender equity may raise ethical concerns, especially when applied at the project level, rather than through institutional policies.
Nominating a gender diversity representative at the project level	The responsibility for gender diversity should be within the project coordination team to ensure support and accountability. The role of the **gender diversity representative** should be to coordinate actions and ensure the gender plan is written, relevant, enforced and regularly reviewed. It should be avoided that this responsibility falls solely on women.
Considering accessibility in planning live meetings	When organizing project meetings, a registration form could collect necessary information to plan the event to be **accessible to all genders** (adequate spaces and necessary breaks i.e., for mothers with small children).
Broadening our scope of planning and action	Ensuring equity and equality should not stay at the gender level only, but intersectionality should be included to promote equity, diversity and inclusion at the project level.
Avoiding gendered language	Avoiding gendered language within the project facilitates inclusivity.

In Table 9, key insights were compiled from the workshop discussions and developed into recommendations for gender equality awareness at stakeholder engagement processes at the MPA level.

Table 9. Enabling gender equality awareness at the stakeholder processes at the MPA level - key insights and recommendations

RECOMMENDATION	DESCRIPTION
Recognizing the traditional roles in place	It is key to understand the local context of each MPA before planning activities. For example, in Italian MPAs in Blue4All, the sectors within the MPA are predominately male (fisheries, coast guard, etc). The **local contexts and traditional roles** in place should be understood and explored if needed, for adequate planning of activities.
Involving the indirect stakeholders	Including the **indirect stakeholders** (such as fishers' partners, members of family businesses) in the MPA activities could bring diverse perspectives that can be underrepresented sector.
Training facilitators about gender sensitivity	To facilitate participation of all stakeholders, it is important to **train facilitators** to enable balanced dynamics within workshops and meetings. The facilitator should provide a

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	safe space for participation, which might require incorporating different methods of stakeholder engagement.
Incorporating different, more inclusive methods	Instead of organizing consultation processes only as large public forums, incorporating other methods such as **interviews and smaller group discussions** should be considered as well. This could provide new opportunities for all voices to be heard and accounted for.
Providing small funds to support participation	Those could be used to cover transport or childcare.
Adjusting the approach to the local conditions	The group recognized the importance of **localized approaches**, as there is no one-size-fits-all solution for ensuring gender diversity among all the MPAs.
Expanding the view of stakeholders beyond the "user" perspective	Understanding social characteristics like gender, age, ethnicity, and others when doing stakeholder mapping or organizing events would be useful for planning activities.

4.3 Conclusions

The survey results indicate that most respondents were interested in incorporating gender equality awareness into their research but felt they lacked the necessary knowledge or expertise to do so. As highlighted in Table 8, appointing a gender diversity representative supported by the project coordination team would help coordinate actions and ensure that a gender plan is in place and effectively implemented and used.

Building on the workshop discussions, Task 2.2, within WP2, integrated research questions addressing gender equality and gender equity into the tool testing and validation processes. Those questions were addressed in two Living Labs: Otranto-Leuca, and Capo Gallo – Isola delle Femmine MPA. Key findings from these research questions will be explored in tool testing results within the deliverable 2.2. Apart from that, communication and dissemination activities addressing gender equality awareness are planned with WP6 in the Blue4All.

The project team found the GenderWave tool valuable, as it provided a structured set of questions that successfully initiated conversations about gender equality awareness within the project consortium. Those discussions provided useful recommendations for incorporating gender equality and equity within the EU marine research projects and MPA governance. Addressing gender equality in the projects in a streamlined way requires a deep understanding of local contexts and the operational policies of partner organizations. Future projects aiming to do so would need careful planning before writing a project proposal. To advance our efforts towards more equitable EU marine research projects, a specific task should be dedicated for these activities, bringing this theme from a cross-cutting theme to an actionable task.

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5. Key aspects essential for successful co-creation processes with the Living Labs to guide future implementations

Since the processes in the Blue4All´s Task 4.2 "Co-creating and applying socio-economic, governance, ecological and environmental tools in project´s Living Labs to validate their effectiveness and build tangible benefits for the involved MPAs and MPA networks" were based on the principle of co-creation between researchers and relevant stakeholders from the Living Labs (including Contact Points, MPA representatives and key MPA stakeholders), several aspects can be identified as key elements of the collaboration process. These are relevant both for continuing collaboration within the Blue4All project and for informing similar initiatives in future projects.

Identified key aspects essential for successful co-creation processes are the following:

- Early identification and planning of Living Lab engagement

  At the beginning of the project, the processes that required Living Lab engagement were identified, and timelines and methods for these interactions were planned. Setting up the processes required significant effort to develop a shared understanding among the project partners and the Living Labs. It was considered important that everyone understood their role within the process, as collaborators were engaged on many levels – from project WPs to Contact Points, Living Lab representatives, and finally SEG members.

- Flexibility and adaptability throughout the process

  Co-creation with the Living Labs was a dynamic process that needed to remain adaptable throughout the project. Ensuring that all activities were planned well in advance was crucial to provide sufficient time for organizing Living Lab engagement, which included the involvement of MPA managers, various stakeholders, and key experts. As several project WPs and tasks required inputs from the Living Labs, it was important to identify synergies among them and align requests to avoid stakeholder fatigue.

- Strong collaboration with Contact Points in Living Labs

  Strong collaboration with the Contact Points was key to the successful implementation of co-creation, as they ensured the integration of Blue4All processes in their Living Lab(s). To ensure all processes were relevant, it was crucial to involve the Contact Points in the planning stages, as they provided information on the Living Labs' contexts, internal processes, timelines, and stakeholders. Coordination through monthly update meetings, as well as the preparation of necessary documents and materials for the Contact Points, fostered a shared understanding of the project and smoother organization of

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stakeholder engagement processes across different Living Lab contexts.

- Balancing coordination and autonomy

Contact Points needed to be regularly supported and engaged by the coordinator of processes implemented in the Living Labs. However, allowing them space to collaborate directly with partners from relevant WPs, without mediation, was important during the tool testing and validation, once everyone was on board and understood their role.

- The coordinator's role in maintaining oversight and resolving challenges

The coordinator of the processes implemented with the Living Labs did not necessarily need to (or could) be involved in all processes in detail but, more importantly, should have maintained an overview of the processes on a larger scale, along with firm and transparent collaboration with the Contact Points and other WPs. In case any issues or conflicts arose throughout the process, the coordinator needed to be ready to adequately address them, with the support of the project consortium if necessary.

- Continuous feedback integration and knowledge sharing

Finally, amplifying the voices of the Living Labs by collecting their feedback and integrating it into the planning of upcoming activities was crucial. In this way, many good practices were identified and could be replicated within the project, while obstacles and barriers were recognized in time and could therefore be addressed.

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