



# BLUE MISSION BANOS

Supporting the Mission  
Ocean Lighthouse in the  
Baltic and North Sea Basins

## **Deliverable 5.4**

**Outcomes on transferring monitoring practices among different lighthouse areas**

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<b>Author(s)</b>	Lotta Purkamo, Kristiina Nuottimäki
<b>Project Officer</b>	Amy Donnelly
<b>Editor</b>	Frances Klatt, SUB
<b>Approved by</b>	Angela Schultz-Zehden, SUB
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<b>AUTHORSHIP TABLE</b>		
<b>Authors</b>	<b>Partner</b>	<b>Report Chapter</b>
Lotta Purkamo, Kristiina Nuottimäki	GTK	All
Dusan Misevic	SDU	1

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## BLUE MISSION BANOS PROJECT

BlueMissionBANOS (BMB), as a Coordination and Support Action (CSA) for the Baltic and North Sea (BANOS) Mission Ocean Lighthouse, inspires, engages, and supports stakeholders across the BANOS region in taking positive actions to reach the Mission Ocean objectives. In particular, we facilitate the uptake of a sustainable, carbon-neutral, and circular blue economy by connecting national, regional, and transnational actors from politics, industry, and science, thereby creating a governance model conducive to innovation.

While fostering the transition towards the blue economy, BlueMissionBANOS supports preventing and eliminating water pollution and protecting and restoring biodiversity and marine and freshwater ecosystems. The project focuses on reducing governance fragmentation, facilitating evidence-based decision-making, and fostering citizen engagement across the BANOS area. These supporting actions raise awareness, showcase opportunities, and inspire stakeholders to actively contribute to the transition and the preservation of oceans, seas and waters to 2030 and beyond.

To accelerate the transition towards an innovative and circular blue economy, in line with regions' strategic priorities, as defined by their Smart Specialisation Strategies (S3), BlueMissionBANOS organises regional pilot demonstration arenas (Mission Arenas) involving innovators, business support and training organisations, local stakeholders and any interested parties to accelerate the uptake of innovative solutions in support of Mission Ocean. Furthermore, BlueMissionBANOS develops a consistent monitoring framework to assess progress in achieving carbon neutrality and circularity.

Finally, BlueMissionBANOS facilitates synergies and matchmaking between actors working towards achieving the Mission Ocean objectives in the BANOS area by providing a catalogue of services, technical expertise and projects that can foster progress, collaboration and knowledge sharing. BlueMissionBANOS is funded under the HORIZON-MISS-2021-OCEAN-04 call by the European Union under Grant Agreement ID 101093845 and runs from December 2022 until November 2025.



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## ACRONYMS

BMB	BlueMissionBANOS - Supporting the Mission Ocean Lighthouse in the Baltic and North Sea Basin
CSA	Communication and Support Action
KPI	Key Performance Indicator
PESTLE	A systematic tool to analyse impact of the project for different sectors. The tool name comes from the sectors it represents, namely P = Political, E= Economic, S= Sociological, T= Technological, L= Legal and E= Environmental.
PP	Project Partners
PtoI	A systematic tool to analyse impact of the project for different sectors. The tool name is short from Pathway to Impact
ToC	Theory of Change is a method that explains how a given intervention, or set of interventions, is expected to lead to specific development change, drawing on a causal analysis based on available evidence. (UNDAF 2017)
WP	Work Package



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## EXECUTIVE SUMMARY

This report describes the outcomes of a joint workshop among EU Lighthouse Coordination and Support Actions (CSAs) under Mission Ocean & Waters. The five CSAs (BlueMissionBANOS, BlueMissionMED, EcoDaLLi, BlueMissionAA and Prep4Blue), which support the first phase of the EU's Mission "Restore our Ocean and Waters", co-organised a joint, interactive workshop at European Ocean Days 2025. The workshop, *Harmonising KPIs and Approaches to Support Development of Joint Mission Ocean and Waters Monitoring Framework*, was the first collaborative effort between the CSAs to collect and exchange practices and approaches to drive and monitor impact towards the Mission Ocean objectives. For BlueMissionBANOS, this workshop opened the dialogue with other lighthouse areas to transfer sustainable blue economy monitoring practices to other regions.

The Mission Ocean & Waters programme necessitates harmonised monitoring and indicators across projects and over time to ensure consistent and meaningful impact assessment. Currently, the Key Performance Indicators (KPIs) used for measuring the successful transition towards a sustainable blue economy vary between projects, leading to challenges in alignment. With over 40 funded projects demonstrating measurable progress, the lack of alignment results in fragmentation, which weakens comparability and scalability. In BlueMissionBANOS, the Pathways to Impact (PtoI) concept for impact evaluation was used, while some other CSAs used ToC (Theory of Change), for example. The workshop addressed these issues by exploring how to structure monitoring frameworks and indicators across lighthouses and projects for better comparability. The results show that the CSAs used similar processes to arrive at the results: The report describes the challenges and questions that arose from the results for further consideration.

The workshop was planned over multiple joint online meetings during months 11-12 2024 and 1-2 2025. The meetings were hosted by the Prep4Blue CSA (ERINN), and participants included the Lighthouse CSA projects. BlueMissionBANOS CSA (GTK) initiated the workshop planning as outlined in the project DoA task 5.4 and subsequently planned jointly during the online sessions.

The workshop took place on the 3rd of March 2025 as part of the European Ocean Days in Brussels. It was composed of: 1) a welcome and workshop introduction, 2) an introduction to the PESTLE framework (**P**olitical, **E**conomic, **S**ocial, **T**echnological, **L**egal, and **E**nvironmental factors) providing a comprehensive approach to analysing the external environment impacting projects, 3) an overview of the monitoring approach development given by representatives of each CSA, 4) two panel discussions on KPI topics, 5) a word from a European Commission representative about Mission Ocean Monitoring Implementation and 6) closing remarks in the end of the workshop. Simultaneously with the presentations, the audience could participate in answering a set of interactive polls related to KPIs and monitoring impacts.

### Acknowledgements

The workshop was a joint effort by all five CSAs. All CSAs and their representatives who took part in planning and running the workshop, as well as presenters, panellists, and participants are thanked for making the workshop a success.



## 1. BACKGROUND

In this section, the Mission monitoring concepts and their benefits are outlined, and examples of how to implement these methods are introduced. The approach for monitoring and KPI development in BlueMissionBANOS is showcased, detailing its development and implementation. The monitoring approaches of other lighthouse CSAs are explained, concentrating on the development of KPIs and evaluation of the impact and efficiency in meeting the Ocean Mission objectives.

### 1.1. CONCEPTS OF MISSION MONITORING

The EU Mission “Restore our Ocean and Waters” aims to achieve significant impacts on the development of sustainable blue economies, marine and freshwater restoration and pollution reduction. Each funded project within this Mission is required to define a Pathway to Impact (PtoI) tailored to its specific call topic, providing a structured foundation with clear expected outcomes and impact pathways. However, the challenge lies in the diverse methods used to measure impact, leading to difficulties in comparing results and ensuring scalability.

**Pathways to Impact (PtoI)** are specific plans that detail how a project will achieve its desired outcomes and impacts. Each project within the Ocean Mission has already defined its PtoI, ensuring a structured approach to achieving impact. See Figure 1 for the method approach.

**Theory of Change (ToC)** is a methodology that outlines the steps needed to achieve a desired long-term goal. It maps out the causal linkages between activities, outputs, outcomes, and impacts, providing a clear pathway from project activities to the intended impact (Figure 1).

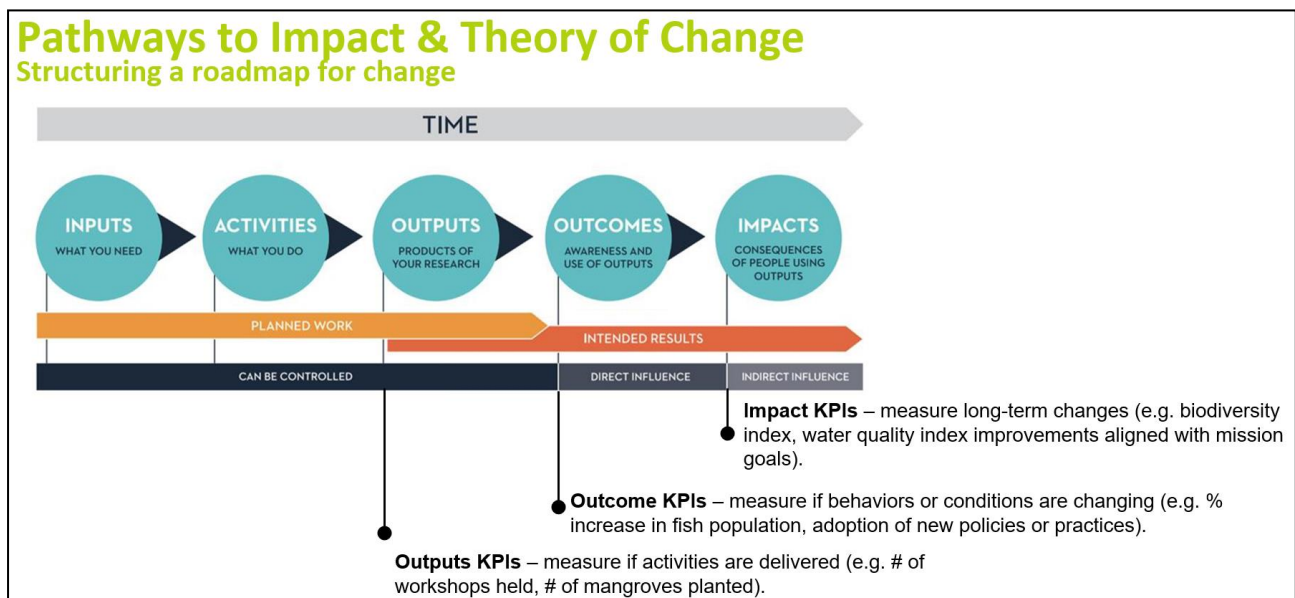


Figure 1. Pathways to Impact and Theory of Change approaches measure process progress. Source: Impact Journey – Research Impact Toolkit (UCD). Image courtesy of H. Hasler-Sheetal / BMAA CSA.

**PESTLE Analysis** (Political, Economic, Social, Technological, Legal and Environmental; also, PESTEL) is a framework used to identify and analyse the external factors that can influence a project's success. It helps in understanding the broader context in which projects operate, highlighting potential enablers and barriers. Figure 2 provides more details on what falls under each factor.

P	E	S	T	L	E
<b>Political</b>	<b>Economic</b>	<b>Social</b>	<b>Technological</b>	<b>Legal</b>	<b>Environmental</b>
measuring if political conditions are favourable or improving	measuring if economic viability and benefits are captured	social dimension of success (community buy-in is critical for e.g. marine conservation)	technology can amplify impact – tracking its deployment shows capacity building	covers the legal enabling environment for sustainability	traditional ecological KPIs indicating on-the-ground impact
Track governance and policy support such as # policies or management plans influenced by the project # level of government engagement (e.g. participation in project events) #new partnerships or commitments	Monitor economic factors & benefits such as # budget efficiency and funds leveraged # jobs created in restoration activities # economic value of ecosystem services restored	Monitors community and stakeholder aspects such as # stakeholder participation counts (workshops, citizen science) #public awareness or attitude shifts (survey results) # social acceptability of interventions.	Include metrics on innovation and tech usage such as #of new tools/protocols developed (eDNA assays, monitoring devices) # data collected (volume, quality via new tech) # platform usability stats	Track legal/regulatory changes such as # new protected areas designated (hectares under protection) # compliance rates with conservation rules in project sites # integration of project results into law or official guidelines	Track changes on ecosystem and environmental aspects such as # area of habitat restored: biodiversity indices (species abundance/diversity) # water quality improvements # climate resilience metrics

Figure 2. PESTLE measures context and enabling factors in the project context. Image courtesy of H. Hasler-Sheetal / BMAA CSA.

Mission Ocean projects do not operate in a vacuum – external factors like political framework conditions, community buy-in, and state-of-the-art technology can all influence success. By mapping PESTLE factors to indicators, projects ensure no key dimension is overlooked. This broad monitoring helps anticipate external changes – e.g., if political support increases or social opposition grows, the project can respond early. While PtoI and Theory of Change (ToC) measure well the actual steps and progress taken in the project (Figure 1), they don't always explain the significance of the result, which sector enables that result, or to which sector the result provides support. PESTLE, on the other hand, describes which sector the Key Performance Indicator (KPI) or activity belongs to, enabling understanding of the external factors in achieving the intended result, leading to potential impact (Figure 2). It is possible to combine these approaches to create more holistic KPIs in several monitoring levels (Figure 3).

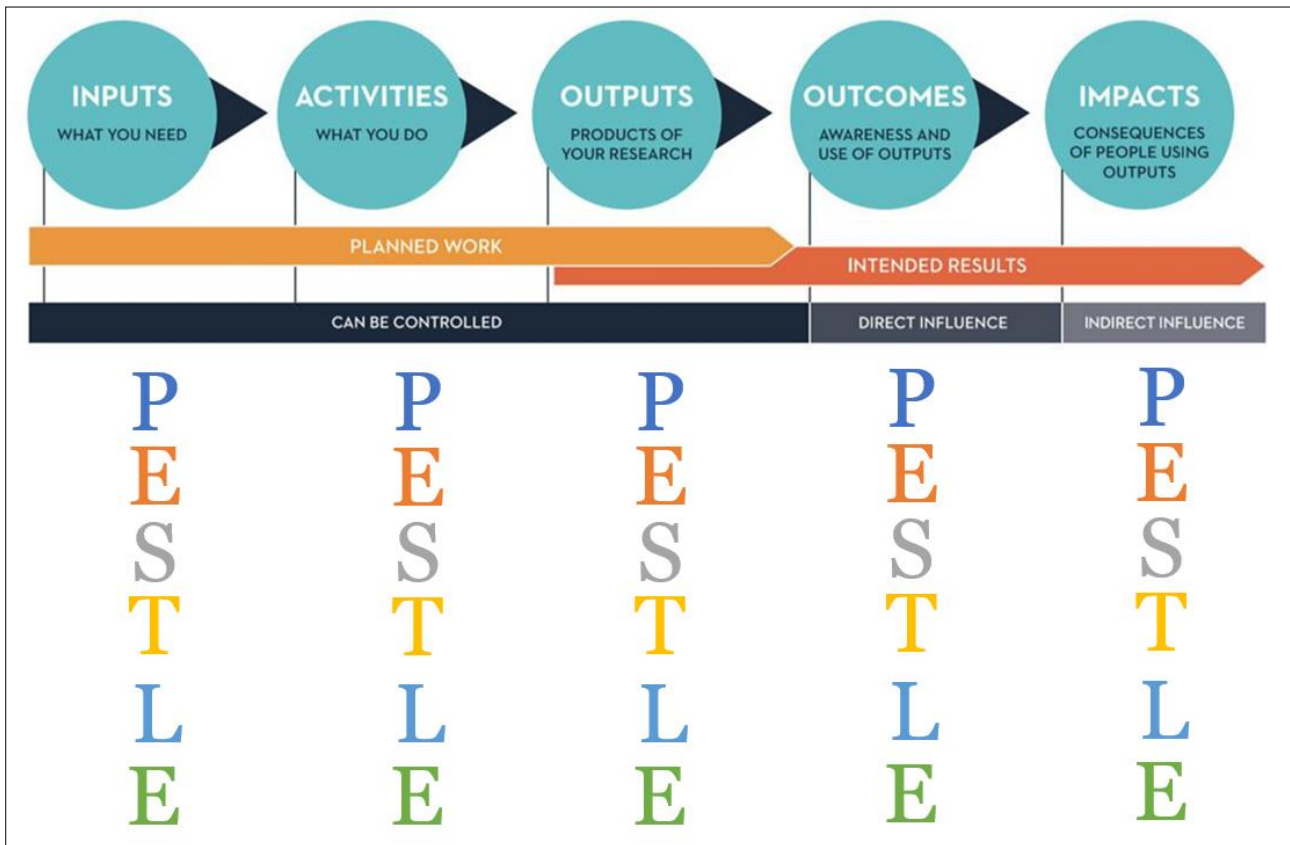


Figure 3. Combining Ptol/ToC and PESTLE approaches. X-axis describes time dimension and Y-axis external factors. Image courtesy of H. Hasler-Sheetal / BMAA CSA.

The benefit of the PESTLE approach is that once taken up, it does not need to replace another way of setting indicators, if another prior methodology is used. Instead, it can be added to other classification systems. This enables its use for aligning results, outcomes and KPIs from various projects or monitoring levels. An example of using two different classification systems is given in Table 1 based on the work done in the BlueMissionBANOS task 5.2. (Milestone: Baseline for carbon-neutral, circular blue economy. 2024. Asmala, Nuottimäki & Purkamo).

The baseline table below (Table 1) provides a structured overview of each KPI's readiness and its relevance within the context of the sustainable blue economy. The **evaluated readiness level (ERL)** column reflects an expert assessment of the KPI's readiness for implementation, using a scale from 1 to 5, where 1 indicates low alignment with KPI selection criteria, and 5 denotes that the KPI meets all selection criteria. The **Framework** and **Stage** columns indicate the contextual framework and development stage of the KPI, helping readers understand the KPI's role within the broader strategic goals. PESTLE classification is given in brackets.

The **data availability** column classifies the extent of available data, from "Full Data" (complete coverage across the BANOS region) to "No Data" (no relevant data currently collected), as described in the data classification system. The **data source** column identifies where the data was obtained, consolidating information from different actors (e.g., governments, businesses, or international agencies). The **baseline value** column presents the quantitative baseline for the KPI, where available, or

indicates if the baseline remains unquantified due to insufficient data. Lastly, the **comments** column contains supplemental information about the KPI.

Table 1. Example of PESTLE classification (in brackets) added to another framework in Waterborne transport sector. ENV = environmental, ECO= economical, TEC=technological, GOV=governmental, POL=political. N/A = not available.

KPI ID	KPI description	ERL	Frame-work	Stage	Data availability	Data source	Baseline value	Comment
W1	Maritime Transport CO <sub>2</sub> Emissions (experimental) (Mt CO <sub>2</sub> eq)	4	ENV (ENV)	IMPACT	Full data	<a href="#">OECD</a>	124.3 million tonnes of CO <sub>2</sub> (2021)	
W2	Number of directly deployable solutions developed using climate neutral, sustainable alternative fuels applicable to ships with high energy demand, e.g., long distance shipping (nr)	4	ECO (TEC)	OUTCOME	Fragmented data	<a href="#">CORDIS</a>	N/A	
W3	Number of green corridors and other initiatives (nr)	3	ECO (ENV)	OUTCOME	Full data	<a href="#">IMO</a>	13 (2024)	
W4	Data sharing: nr of companies already sharing data on GHG emissions (nr)	5	ENV (ENV)	OUTPUT	Partial data	<a href="#">THETIS-MRV</a>	N/A	Potential other sources for data: <a href="#">UN trade and development</a> , <a href="#">EU commission</a>
W5	Number of MSs and Horizon Europe associated states who have adapted R&I programs to increase synergies with ZEWT (nr)	5	GOV (POL)	OUTCOME	Fragmented data		N/A	Projects listed here: <a href="#">Waterborne technology platform</a>

Figure 3 presents two ways to harmonise project steps in different phases of a project's life cycle. The Ptol / Theory of Change approach is a robust method to follow project processes and how it arrives at the planned impact through several phases during the project work. This approach enables comparisons of how project inputs deliver results and how effectively resources are used to reach the project aims. PESTLE, however, focuses on external factor. It can be used to assess inputs and activities, outputs, outcomes and impacts within the sector. This analysis helps to identify the enabling sectors for the project and determine whether the project outcomes are leading to intended impacts in the sector. Using the PESTLE approach can also reveal whether all the sectors are equally enabling or considered during the project life cycle. It can identify any lack of input or impact in specific sectors during the process.



## 1.2. INTRODUCTION TO THE BLUEMISSIONBANOS MONITORING APPROACH DEVELOPMENT

In the BlueMissionBANOS CSA, the monitoring approach development aims to support evidence-based decision-making for sustainable blue economy initiatives. Monitoring activities should align with the Mission Objective: “Make the sustainable blue economy carbon-neutral and circular” in the Baltic and North Sea (BANOS) Lighthouse region and allow tracking the progress towards reaching the targets on zero-emission maritime activities, zero-carbon aquaculture, and low-carbon multipurpose use of marine space.

The initial Key Performance Indicator (KPI) desktop mapping exercise was started in Task 5.1, which identified 419 existing KPIs relevant for Mission Ocean objective 3 (sustainable blue economy). Subsequently, the KPIs were divided into Mission-relevant blue economy sectors and categorised based on the sustainability framework and Ptol concepts. This desktop study was used as background data to open a discussion with stakeholders in a workshop at the 1<sup>st</sup> BlueMissionBANOS Mission Arena, which also included new KPIs formulated during the workshop and identification of data gaps. (Ikauniece *et al.* 2024)

The work continued in T5.2 “*Formulate and validate KPIs for Sustainable, Carbon-Neutral and Circular Blue Economy: Baseline of SBE in BANOS area*”, where the KPIs were further defined with the help of invited experts. The **first expert online consultation** aimed to **shortlist the best KPIs** for each Mission-relevant blue economy-specific sector (aquaculture, energy, waterborne transport, ports, sea area multi-use) based on given selection criteria. Criteria for KPI selection were: Relevance to sector and sustainability area, Data availability, Measurability and quantifiability, Actionability, Comparability, Stakeholder engagement, Integrability and Forward-looking. The most favoured KPIs were listed for each sector, the shortlisted KPIs were validated, and the 10 best were collected for further consideration. **The second online consultation discussed baseline definitions and additional future monitoring needs.** In addition, the experts were asked to fill out an online questionnaire to rank sector-specific KPIs and assess the readiness level based on the KPI selection criteria mentioned above. The final top 50 KPIs (10 for each Mission-relevant blue economy sector) were reported, each KPI including evaluated readiness level, defined baseline and data source (where available), Sustainability and PESTLE framework sector and Ptol stage.

In principle, the data describing KPIs could be collected, synthesised, and displayed on one internet site or Mission platform, such as the WaveLinks platform ([www.WaveLinks.eu](http://www.WaveLinks.eu)), thus making the KPIs readily available to all relevant stakeholders. The data collection can be conducted manually, on a case-by-case basis. However, this is generally very time-consuming and makes it challenging to ensure that KPIs displayed are comprehensive and up-to-date. Technically, it is possible to conduct an automated regular data harvesting from selected sites, which is generally the preferred method. Such automatic updating would help make the progress achieved in KPI application in different Lighthouse areas visible in a unified manner and make the up-to-date information readily available from a single source. To make automated data collection possible, the data should ideally be located in stable internet locations that do not change data format or site address; for example, national databases managed by an appointed authority. Data should be offered in a format that is harvestable, i.e. not as an image, but as JSON or CSV files, preferably available via API protocols. Data repository sites should be publicly available or offer other easy-to-access location, such as a dedicated cloud service, and be available either without login or with a simple authentication method.



Also, for the KPIs to be presented in a unified manner, the data should ideally be in the same technological maturity within one sector. If there are large differences in maturity, it could be that the sector could not be described using one single KPI to cover all the Lighthouse areas, but rather a group of KPIs. Detailed descriptions of best data storage and sharing practices will be discussed in the BlueMissionBANOS deliverable 5.3, including a blueprint with final recommendations for the reporting and monitoring framework. The blueprint includes a user’s guide to ensure that data sources are selected and utilised in a manner that facilitates automatic collection or scraping, thereby streamlining the data integration process. By adhering to the guidelines presented in this user manual, the collaborators will contribute to establishing a robust and efficient data collection framework, which will increase the accessibility and reliability of KPI measurements across different CSAs.

In summary, the methodology for the development of the key performance indicators was conducted in the following six consecutive phases (Figure 4):

1. Desktop study: mapping of existing KPIs
2. An in-person stakeholder workshop
3. 1st online consultations with invited experts: shortlisting the most appropriate KPIs
4. Final validation and cross-checking with available data sources
5. 2nd online consultation with invited experts: Identification of future monitoring needs: qualitative and future KPIs
6. Drafting the final KPIs for a sustainable, circular, carbon-neutral blue economy in the BANOS area

The methodology used for developing KPIs for a sustainable, circular, carbon-neutral blue economy for the BANOS area is described in more detail in deliverables 5.1 (Ikaunieca *et al.* 2024) and 5.2. (Asmala *et al.* 2024).

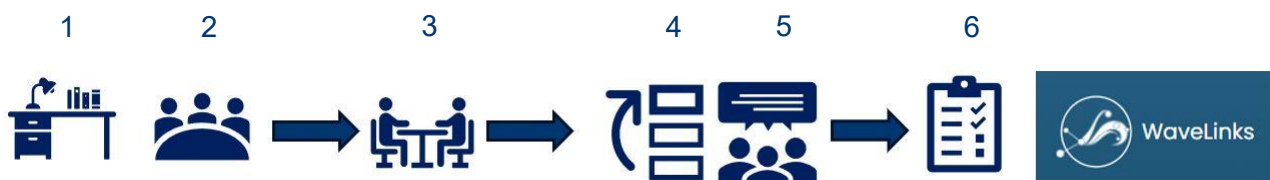


Figure 4. Process for creating KPIs in BlueMissionBANOS CSA. Image courtesy of L. Purkamo / BMB CSA.

### 1.3. KEY PERFORMANCE INDICATOR DEVELOPMENT APPROACHES ACROSS THE LIGHTHOUSE CSAS

This section briefly describes the KPI development in other Lighthouse CSAs. As the primary Mission objectives and targets are different in each Lighthouse area, the monitoring needs are also different, and the KPIs reflect this.

The **BlueMissionAA** (Atlantic and Arctic) CSA approached monitoring the implementation and achievement of Mission Ocean objective 1, “Protect and restore marine and freshwater ecosystems and biodiversity”. First, a baseline study evaluated the scientific and technical attributes of existing marine ecosystem restoration activities and reviewed the existing restoration programs and projects.

This inventory aided in identifying gaps in current indicators and areas where there is a need for new KPIs.

The next step included analysing solutions and knowledge needs to ensure effective monitoring and that the monitoring framework aligns with scientific and policy objectives. To further advance KPI sharing and standardisation, five KPIs were selected to be integrated into the WaveLinks platform as test cases to develop general tools for KPI data retrieval, synthesis, visualisation, and sharing. The selected KPIs span different domains (e.g. aquaculture, energy) and different data sources (e.g. EU Blue Economy Observatory, OECD statistics). These KPIs are currently being integrated into WaveLinks platform and will be available there by summer 2025. As part of this process, general data structures to store KPI data will be developed, allowing easier future integration of additional KPIs into WaveLinks platform.

Finally, alignment with the overall Mission Ocean monitoring system is done through collaboration with the MIP and other CSAs (Figure 5).

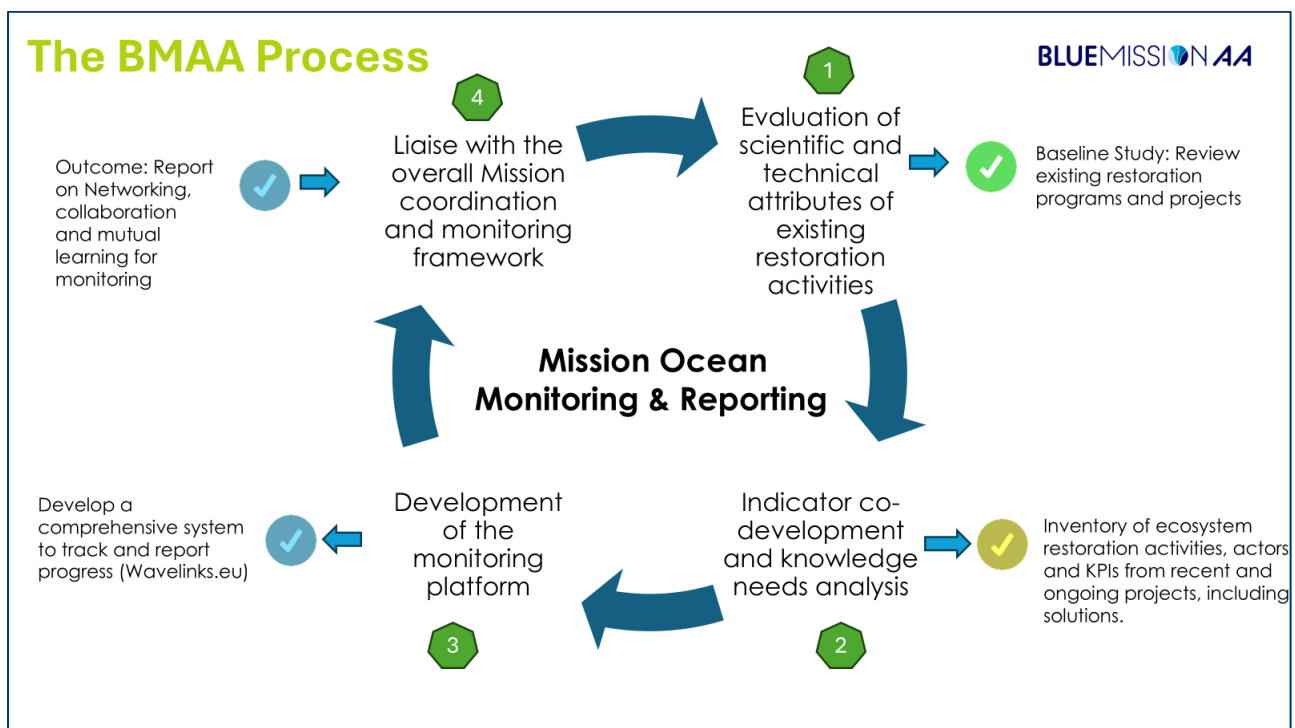


Figure 5. Process for creating KPIs in BlueMissionAA. Image courtesy of H. Hasler-Sheetal / BMAA CSA.

**BlueMissionMED's** indicator development process (Figure 6) aimed at effectively monitoring and addressing Mission Ocean objective 2, “Prevent and eliminate pollution of our Ocean, Seas and Waters”. Initially, indicators were defined and developed based on the Implementation plan of the Mission (Restore our Ocean and Waters by 2030) and the initial studies by MIP, incorporating MED project indicators and internal consultations. The project adopted the Ptol (Ptol) method, focusing on producing information and knowledge that contribute to the expected outcomes of the Mission. Initially, 13 outputs, 11 outcomes, and 2 impacts were defined, which expanded to 41 outputs, 21 outcomes, and 3 impacts by the project's end. The finalisation of indicators will occur after iterative

reviews, with hopes of utilising knowledge and results of the Ocean Days’ workshop in the future work.

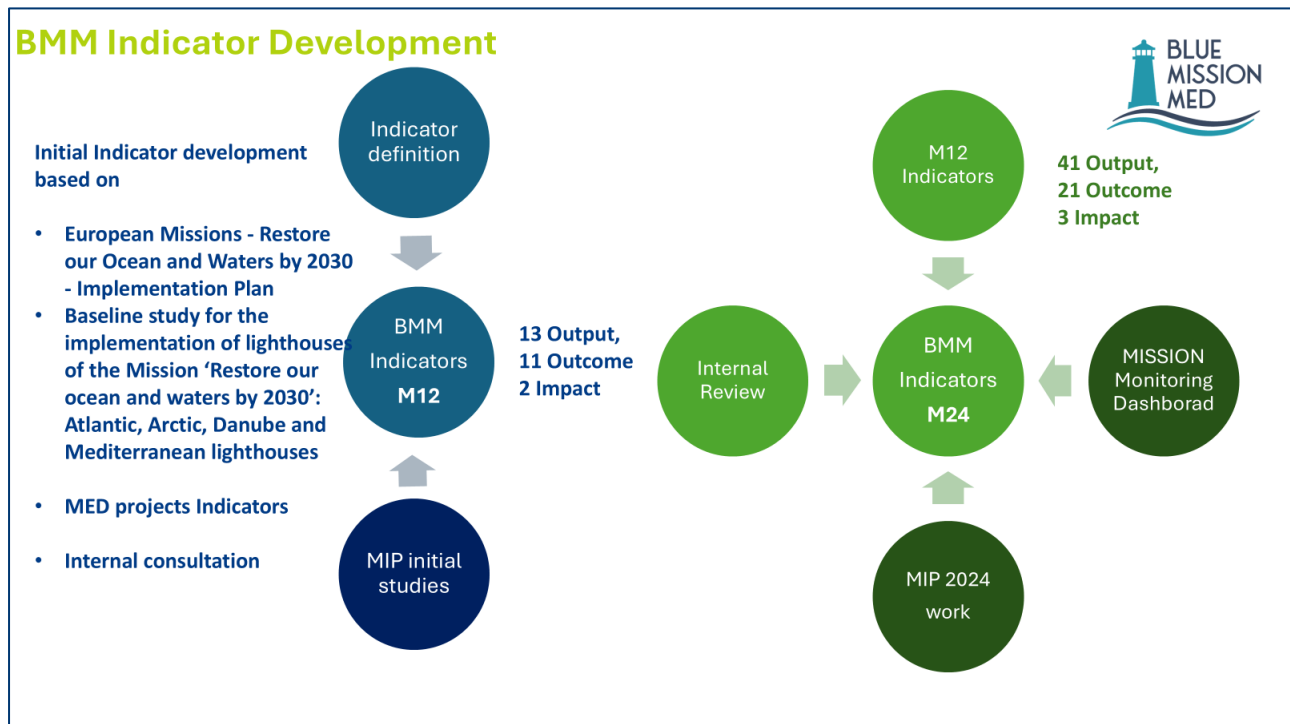


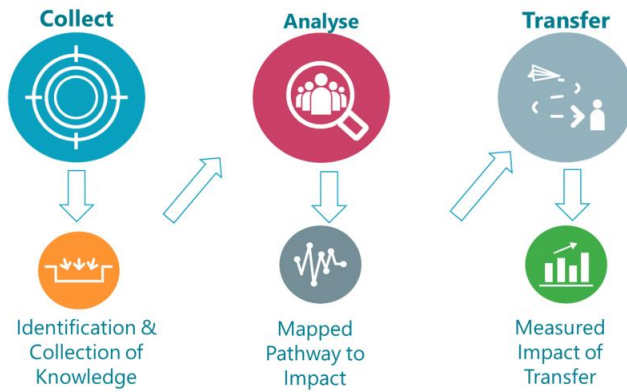
Figure 6. Process for creating KPIs in BlueMissionMED. Image courtesy of N. Streftaris / BMM CSA.

The **Prep4Blue** project had the overarching objective of facilitating the Mission Ocean by delivering a series of tools, guidelines, methodologies and recommendations to support Mission-funded projects. In respect to monitoring Prep4Blue has utilised the [Knowledge transfer methodology](#) in combination with the Ptol method and an approach to selecting KPIs using analysis criteria (Figure 7). The knowledge transfer methodology uses a stepwise approach for targeted users to arrive to ‘Measured Impact of Transfer’. It starts with the identification and collecting suitable knowledge followed by an analysis step. Knowledge analysis leads to mapped Ptol that is then transferred by practitioners into concrete actions. The final step is to measure the impact of the transfer. The presented analysis criteria for indicators contained criteria for Suitability / Mission fit and their application and impact potential by 2030.

The indicators developed by Prep4Blue for analysis criteria can also be used in Ptol approaches. In addition to project-level assessments, they can be used to estimate how individual knowledge at the partner level can support achieving the end result.

## APPROACH IN PREP4BLUE

### Knowledge Transfer Methodology by ERINN Innovation



© Image courtesy of ERINN Innovation

### Analysis Criteria

	Suitability*/ MISSION FIT	Application and Impact potential* By 2030	External factors and other considerations
<b>Criteria</b>	Mission Objectives*, Targets*, Enablers*	Maturity*: Achievable Readiness-level (TRL, BRL, MRL, SRL, IRL)*	Market (CAGR, need, readiness) and market share (TAM, SAM, SOM)
	Policies, regulations or legislations the Mission is expected to contribute to (e.g. GreenDeal, SDG*)	Scale-up* and scale out potential to maximise impact	User (identified, known, clear need identified, gains and pains across the value chain addressed)
	Protect and restore the health of our ocean and waters, climate neutrality, nature restoration	Replicability* (Geographical, Sectorial etc.)	Feasibility (e.g. a new standard to be implemented into a member state)
<b>Indicators</b>	Contribution to target impacts in a specific Lighthouse area	Uptake potential (COM-B, TAM, TAC, BCW)*	Competitors (strong competitor landscape or solution easy to copy)
	Innovativeness (transformative*, incremental, disruptive)*, beyond the State of the Art	Systemic application* (sub-system, system, ecosystem)	Resources needed for scaling (time, funds)
	Not highly innovative but high value to create impact.	Negative impacts (collaterals, risks, barriers, trade-offs)	Domain-specific considerations

Figure 7. Process for creating KPIs in Prep4Blue. Image courtesy of C. Managò / ERINN Innovations, Prep4Blue CSA.

## 2. WORKSHOP AT THE EUROPEAN OCEAN DAYS 2025

### 2.1. PRESENTERS AND REPRESENTATIVES

PREP4BLUE, the European sea- and river basin overarching CSA, was represented by Caecilia Managò (ERINN); BlueMissionAA, the Atlantic and Arctic Lighthouse CSA was represented by Harald Hasler-Sheetal (ICES); BlueMissionBANOS, the Baltic and North Sea Lighthouse CSA was represented by Lotta Purkamo (GTK); BlueMissionMED, the Mediterranean Lighthouse CSA was represented by Nikos Streftaris (HCMR) and EcoDaLLi, the Danube River Basin Lighthouse CSA was represented by Lisa Waldenberger (BOKU). The European Commission was represented by Jacques Delsalle (DG MARE).

Representatives from Mission projects discussed challenges in KPI identification, implementation & scalability and ensuring KPI adoption & integration in Mission projects in two respective Panel Discussions. Innovation action projects were represented by Alexander Ziemba (ULTFARMS), Sophie Jensen (BIOPROTECT), Marton Pesel (DALIA), Lorenzo Proia (SEACURE) and Uroš Novak (REM-EDIES).

The workshop attracted an audience from several countries and with varying backgrounds, which enabled lively discussion. See Annex 5.3 for the composition of the audience.



## 2.2. WORKSHOP AIMS

The workshop between the Lighthouse CSAs was organised in Brussels during the European Ocean Days on 3<sup>rd</sup> March 2025. The workshop aimed to foster collaboration among the Lighthouse Coordination and Support Actions (CSAs) involved in the EU Mission Ocean & Waters programme. By bringing together CSAs, the workshop sought to initiate the creation of a unified approach to monitor the implementation and achievements of the three Mission Ocean objectives. This collaboration is crucial for ensuring that monitoring efforts are consistent, comprehensive, and capable of providing meaningful insights across different projects and regions.

Another aim of the workshop was to facilitate the exchange of best practices and approaches among the participating CSAs. Each CSA is developing or has already developed unique methodologies and tools for monitoring and/or reporting on Mission Ocean objectives. By sharing these practices, the workshop aimed to identify the most effective strategies and promote their adoption across all CSAs and other Mission Ocean & Waters funded projects. Such an exchange helps to harmonise monitoring efforts, making it easier to compare and begin to assess the various impact approaches adopted in the different initiatives. By encouraging communication and collaboration between the Lighthouse CSAs, MIP and EEA, the workshop aimed to ensure that successful monitoring frameworks and indicators developed in one region could be transferred and adapted to others. This dialogue is essential for scaling up successful practices and achieving broader impact across Europe.

The workshop also served as an opportunity to introduce the specific approach developed by BlueMissionBANOS for monitoring sustainable blue economy activities. BlueMissionBANOS has been at the forefront of developing innovative monitoring frameworks and indicators tailored to the unique needs of the BANOS area. By presenting our approach in BlueMissionBANOS, showcasing our methodologies, and sharing lessons learned, we inspired other CSAs and Lighthouse regions to adopt similar practices. This introduction helps to highlight the strengths of the BlueMissionBANOS approach and encourages its integration into the broader Mission Ocean & Waters programme.

## 2.3. WORKSHOP PREPARATION

The preparation for the workshop was a collaborative and iterative process involving representatives from all participating Lighthouse Coordination and Support Actions (CSAs). The preparations were initiated in November 2024 following the suggestion of BlueMissionBANOS to organise a joint workshop. They culminated in the workshop held on the 3<sup>rd</sup> of March in European Ocean Days in Brussels. A living document shared among all CSA representatives was utilised, which served as a central hub for planning, allowing everyone to contribute ideas, track progress, and make updates in real-time. This collaborative approach ensured that all voices were heard and that the planning process was transparent and inclusive.

To ensure smooth coordination, weekly meetings (excluding a holiday break) were held, in which CSA representatives gathered to discuss various aspects of the workshop's organisation. These meetings, hosted by ERINN, were crucial for aligning our efforts, addressing any emerging issues, and making collective decisions. On a few occasions, representatives from the Mission Implementation Platform (MIP) also participated, providing additional insights and support.



In collaboration and agreement with the European Commission, a decision was made to hold the workshop during European Ocean Days, as it provided a prominent platform to reach a broad audience of stakeholders involved in the Mission Ocean & Waters programme. The timing and venue were ideal for maximising engagement and impact.

To enrich the workshop content and foster dynamic interactions, panel discussions were included as part of the workshop format. These panels were designed to provide insights from the perspective EU Mission-funded Innovation Actions (IAs), highlighting their experiences and challenges. The panel format also allowed for a more engaging session. Interactive elements, such as polls, were incorporated to enhance audience engagement further. These polls aimed to gather real-time feedback on the biggest challenges in KPI alignment across projects and monitor project impacts for Innovation Actions. This interactive approach made the workshop more engaging and provided valuable data to inform our discussions and recommendations.

Following this structured and collaborative approach, a comprehensive and impactful workshop that addressed the key issues in harmonising KPIs and monitoring frameworks across the Mission Ocean & Waters programme was prepared. The final programme is shown in Annex 5.1.

## **2.4. WORKSHOP EXECUTION**

The workshop took place from 2:00 to 3:30 PM on 3rd of March 2025 in Charlemagne, EU Commission, Brussels (Workshop Agenda, Annex 5.1). The workshop began with an introduction by Caecilia Managò (Prep4Blue) on its purpose, followed by Harald Hasler-Sheetal (BMAA, BMB) presenting a structured way to align indicators across the Mission Ocean projects and creation of a harmonised monitoring approach that works across different projects and sea basins. Examples of KPI development and monitoring approaches were shared by Harald Hasler-Sheetal (BMAA), Lotta Purkamo (BMB), Nikos Streftaris (BMMED), and Caecilia Managò (Prep4Blue). The session then transitioned to reflections on monitoring approaches by the panellists, facilitated by Nikos Streftaris (BMMED) (Annex 5.2). Simultaneously, the audience were asked to participate through interactive polls.

During the workshop, the tools developed by ERINN were made available through a QR code to the participants and can be found on the WaveLinks internet page. The report behind the link describes the development method for the presented approach. It describes how the synergy of several projects together can produce a larger selection of end results than the outcomes from one project alone, as synergies multiply the benefits. These tools are available and explained in detail on the Prep4Blue internet pages as well as in videos and documentation shared on WaveLinks platform itself.

The panel with representatives from various Innovation Actions (IAs) discussed specific questions on two separate panel sessions (Tables 1 and 2). The first panel facilitated by Nikos Streftaris from BMMED was built around the topic "Challenges in KPI identification, Implementation and Scalability" and the topics of the panel included the development of indicators, adoption of presented approaches, and challenges in monitoring. Next, Jacques Delsalle representing DG MARE contributed to the discussion by presenting the Mission Ocean and Waters Monitoring Framework. The session continued with another panel discussion focusing on ensuring KPI adoption and integration into Mission projects, facilitated by Lisa Waldenberger (EcoDaLLi), and concluded with a summary and way forward by the organisers (Annex 5.2.). The second panel was built around the topic of "Ensuring KPI adoption and integration into Mission projects", and discussion in this panel involved resources



for impact measurement, ensuring KPIs are standardised but flexible and challenges in measuring long term impacts.

**Table 1. The questions in the first panel discussion.**

<b>Question</b>	<b>Panellist</b>
What are the most critical KPIs currently used in your project?	Alex Ziemba (Deltares) / ULTFARMS, BANOS LH
Which KPIs align well with the Mission Ocean objectives?	Sophie Jensen (Matís) / BIOPROTECT, AA LH
What challenges do you face in measuring long-term impact?	Marton Pesel (General Directorate of Water Management Hungary) / DALIA, DBS LH
How do external PESTEL factors (policy shifts, funding, legal frameworks) influence KPI tracking?	IA representatives
Are there overlooked dimensions in the monitoring frameworks that should be integrated?	Lorenzo Proia (Universitat de Vic, Universitat Central de Catalunya) / SEA-CURE, MED LH

**Table 2. The questions in the second panel discussion.**

<b>Question</b>	<b>Panellist</b>
What is needed to formulate a blueprint for harmonised monitoring approaches in IAs?	IA representatives
How can we ensure that KPIs remain flexible yet standardized across different sea basins?	Uroš Novak (Kemijski Inštitut - National Institute of Chemistry in Slovenia) / REMEDIES, MED LH
How can IAs continue monitoring efforts beyond the project funding period?	Sophie Jensen (Matís) / BIOPROTECT, AA LH Marton Pesel (General Directorate of Water Management Hungary) / DALIA, DBS LH
What are the data gaps, and how can we address them collectively?	IA representatives
What resources (funding, technology, training) would help in scaling impact measurement?	Alex Ziemba (Deltares) / ULTFARMS, BANOS LH

### 3. WORKSHOP OUTCOMES



### 3.1. PANEL 1

The topic of the first panel discussion was “*Challenges in KPI Identification, Implementation & Scalability*”. Alex Ziemba, representing the ULTFARMS project from the BANOS Lighthouse area, emphasised the importance of measuring productivity (both in quantity and quality) and environmental impact of the respective Low-Trophic Cultivations installed in OWPs, concentrating on the balance of nutrients, as the most critical KPIs in their project. Sophie Jensen from the BIOPROTECT project from the AA Lighthouse area highlighted that ecosystem diversity, seafloor integrity improvement and biomass production are aligning well with the Mission Ocean objectives. She also stressed the importance of stakeholder engagement, ensuring local actors are involved from the beginning in demonstration sites of the respective projects. Marton Pesel from the DALIA project from the Danube Lighthouse area saw challenges in measuring impact of their project because of the diversity of pilot and study sites, with *i.e.* different conditions regarding pollution levels. It was also stressed that because 14 countries are involved in the Danube lighthouse area, there is a lot of diversity with the challenge of securing common funding across all countries involved. Lorenzo Proia, representing the SEACURE project from the MED Lighthouse area, pointed out that overarching indicators are probably the most currently overlooked dimensions in monitoring frameworks. He was hopeful that harmonisation could be achieved using the PESTLE methodology. He also emphasised the need for comprehensive indicators that combine short-term projects with long-term data, and the importance of integrating local communities’ knowledge in monitoring.

### 3.2. PANEL 2

The topic of the second panel discussion was “*Ensuring KPI Adoption & Integration into Mission Projects*”. Alex Ziemba emphasised that resources needed for scaling impact measurement can vary greatly depending on the context. He highlighted the importance of common terminology and a shared understanding of results and impact. Instead of creating multiple new platforms, having a single platform where data can be harvested would be optimal. Uroš Novak from the REMEDIES project from the MED lighthouse area stressed the importance of connections and collaboration. He mentioned the need for consistent reporting on issues such as microplastic collection, using the same terms and technical language. He also highlighted the value of training and saw the benefits of the PESTLE methodology to maintain flexibility and productivity while ensuring standardisation. Sophie Jensen and Marton Pesel discussed the challenges of measuring long-term impact, including the distinction between project and impact monitoring, and the need for funding for continuation after project lifecycle. They emphasised the importance of post-project impact measurement, data consistency, and the potential for future project partnerships. They suggested that long-term KPIs could include impact monitoring and future partnerships but highlighted the difficulty of maintaining continuity and securing funding for this kind of activity. They suggested that the EU should play a role in ensuring the continuation of impact monitoring of a project after its official end.

### 3.3. AUDIENCE POLLS

Altogether 86 people logged in to the Slido polling system, and 70 of these engaged with the polls. Audience members were from 14 different countries EU-wide, with most participants from Portugal, Denmark, Belgium, Spain and Germany. Most participants were involved in Mission Ocean projects



(82%), and represented, e.g. research, consulting, policy and governmental sectors. The most challenging aspect of KPI alignment across projects was making the indicators practical for implementation and ensuring long-term impact tracking. Aligning the KPIs with governance and policy needs was seen as the least challenging. Difficulty in measuring long-term impact and the lack of comparable indicators across projects were seen as the biggest challenges in monitoring project impact, while gaps in technical capacity for real-time monitoring were not regarded as a very difficult challenge to overcome. Finally, more standardised indicator sets and more funding for long-term monitoring were seen to be most helpful for Mission Ocean projects when implementing KPI tracking. See summary of the poll results in Annex 5.3.

### 3.4. WORKSHOP CONCLUSIONS

The workshop outcomes and discussions underscore the complexity and diversity of challenges in KPI identification, implementation, and scalability across the lighthouse areas. Effective impact measurement and monitoring require collaboration among stakeholders, standardisation of indicators, and sustained funding. The involvement of local actors from the beginning enhances the impact, while harmonising data across different contexts ensures consistency. The EU's role in ensuring the continuation of impact monitoring after project completion is crucial for maintaining progress and fostering future partnerships. Addressing these challenges with a unified approach and leveraging methodologies like PESTLE can significantly improve the effectiveness of KPI tracking and contribute to the success of Mission Ocean projects.

## 4. SUMMARY AND NEXT STEPS

### 4.1. HARMONISING TOOLS, METRICS AND LANGUAGE

While the work towards harmonising the metrics used in assessing and comparing the impacts has started, and commonalities in the harmonisation process between the different CSAs are identified (Table 3), much more is still to be done. This concerns the grassroots level actors, projects and monitoring conducted by the national or regional authorities and the EU alike. Harmonisation should consider aspects such as data consistency (both available and produced data) to offer a unified view on the progress, and on the other hand, offer resources to an appointed actor to maintain the available data. At the same time, indicator reporting should not require the local actors to use several and novel data repositories. Instead, participants called for combining or unifying the existing reporting requirements.

Harmonising the impacts involves using similar metrics and, importantly, the same language and technical terms. This supports communicating technical information to non-experts as well as experts in the field and standardises the terminology in the discussion. It is important to enable the exchange of ideas and sharing of experiences between the actors themselves and between sea basins.

Table 3. Identified commonalities by CSAs for future work to harmonise KPIs across Lighthouse areas.



Object to harmonise	Tool for harmonising	Enablers
Metrics used in KPIs	Sharing and adopting KPIs across lighthouse areas	<ol style="list-style-type: none"> <li>1) Data availability + data production in a consistent manner</li> <li>2) Must be done in all levels (grass root, project, region, national, EU)</li> <li>3) Exchange of ideas needed</li> <li>4) Exchange of experiences needed</li> <li>5) Local communities must be involved</li> </ol>
Indicator reporting by actors	Simplified reporting of KPIs for actors	<ol style="list-style-type: none"> <li>6) Appointed actor / authority for collecting data</li> <li>7) A site or platform that collects, combines, unifies data and not yet another reporting system</li> </ol>
Language and technical terms	Dictionary / ontology	<ol style="list-style-type: none"> <li>8) Appointed actor for compiling the tool</li> <li>9) Appointed location for sharing, made available for users</li> </ol>
Identifying long term trends in KPIs: extent of their adoption and implementation, changes in observed metrics	KPI monitoring in a consistent manner for a long period	<ol style="list-style-type: none"> <li>10) Enabling long time series in monitoring by long term funding: projects, regional and national monitoring</li> </ol>

By incorporating the PESTLE overlay into existing KPI classifications, monitoring can achieve a higher level of harmonization that is easy to implement, fast to adopt, and requires minimal extra work.

## 4.2. SUSTAINABILITY OF THE WORK

All CSAs agreed that long-term funding is needed to achieve long-term results in monitoring harmonisation. This was emphasised by the IA projects as well. Project duration is short compared with the time scale needed for the harmonising and impact creation process, not to mention the time needed for the positive outcomes and impacts to materialise and continue long enough to show trends. While measuring the sustainability of the projects themselves, long-term funding for long-term results for interproject time scale should be identified. The need for long-term funding in order to assure longevity and sustained benefit of project monitoring via KPIs equally applies to platforms that synthesise, visualise, and share the relevant KPIs, such as WaveLinks.

## 4.3. THE WAY FORWARD



The CSAs found the workshop and the exchange of ideas highly beneficial to their work. They anticipate that more such events will take place, fostering increased synergies between Lighthouse CSA projects. To further these efforts, the EU and EEA are organising roundtable discussions, of which the first one was held already in 28<sup>th</sup> of March 2025. In this, representatives from the EU Commission - Mission Ocean and Waters Secretariat, European Environment Agency, Lighthouse CSAs and Mission Implementation and Support Platform were present. After short introductions from the participants, the objectives of the roundtable meetings were agreed upon, each CSA presented their approach to the KPI development, and a conceptual framework for the Mission Outcome indicators were discussed. These roundtables provide a platform for continuous dialogue, ensuring that the harmonisation process remains dynamic.

The insights gained from the workshop provide the basis for the Policy Brief on “*Monitoring for Transformational Change: Integrating Pathways to Impact and PESTLE in Support of the Sustainable Blue Economy*”, found on the BMB website. The policy brief contains action points including the piloting and testing the developed framework combining the PESTLE-PtoI approach, encouragement of the funders to include PtoI/PESTLE-informed monitoring in proposal and reporting guidelines, and enhancement of data interoperability enabling data sharing, aggregation and reuse. The workshop results are also instrumental input into the BlueMissionBANOS Deliverable 5.3: *Recommendations for BANOS area monitoring framework*, including the final blueprint for monitoring of sustainable blue economy activities in the BANOS area. The blueprint will serve as a foundational document in formulating the recommendations for the monitoring and reporting framework, in addition to data alignment needs and information requirements of future monitoring.



## 5. ANNEXES

### 5.1. WORKSHOP AGENDA

#### Workshop Agenda (1-Hour Duration) with SLIDO Integration

**Title:** Harmonizing Monitoring Approaches & KPIs across CSAs and IAs

**Objective:** Align indicators and monitoring frameworks across Mission Ocean projects to improve comparability, scalability, and impact tracking.

**Format:** Structured presentations + panel discussions + interactive SLIDO engagement.

#### 🕒 Workshop Agenda (60 min)

Time	Agenda Item	Speaker(s)/Facilitator(s)	Format	SLIDO Polls
0:00 - 0:03	<b>Introduction &amp; Workshop Purpose</b> – Why harmonizing KPIs across CSAs & IAs is crucial	<b>Caecilia Manago (P4B)</b>	Presentation	No poll
0:03 - 0:10	<b>PESTEL &amp; Pathways to Impact (ToC/Ptol) as Structuring</b>	<b>Harald Hasler-Sheetal (BMAA, BMB)</b>	Presentation with <b>SLIDO audience poll #1</b>	<b>Poll #1</b> – <i>What is the biggest challenge in monitoring project impact?</i>



	<b>Tools for Monitoring</b> – Introducing the concepts & framing for the workshop			
<b>0:10 - 0:30</b>	<b>Overview of Monitoring Approaches per CSA</b>	<b>BMAA (Harald H-S.), BMBANOS (Lotta P.), BMED (Nikos S.), P4B (Caecilia M.)</b>	<i>Each CSA presents for 5 min, highlighting their Approaches to Monitoring</i>	No poll
<b>0:30 - 0:40</b>	<b>Panel Discussion 1</b>  <b>SLIDO Audience Engagement: Challenges in KPI Identification, Implementation &amp; Scalability</b>	<b>IA Representatives &amp; Facilitated by Nikos Streftaris (BMmed)</b>  <b>SLIDO Moderation (Franny Klatt, BMBANOS)</b>	<i>Live audience input, quick reaction from panel OR presentation of slido #1 and #2</i>	<b>Poll #2</b> – <i>What is the biggest challenge in KPI alignment across projects?</i>
<b>0:40 - 0:45</b>	<b>Mission Ocean Monitoring Implementation &amp; Measuring Impact</b>	<b>Jacques DELSALLE (EC)</b>	<i>Short presentation to align CSA-IAs efforts with MIP and EEA</i>	No poll



<b>0:45 - 0:55</b>	<b>Panel Discussion 2: Ensuring KPI Adoption &amp; Integration into IAs</b>	<b>IA Representatives &amp; Facilitated by EcoDalli</b>	<i>Structured Q&amp;A, audience &amp; panel response</i>	<b>Poll #3</b> – <i>What would most help IAs implement effective KPI tracking?</i>
<b>0:55 - 1:00</b>	<b>Summary &amp; Closing</b> – Key takeaways, next steps for KPI harmonization	<b>Moderator OR Panel of presenters</b>	Summary; presentation of slido #3 and #4	No poll

**Overview of SLIDO Sessions & Panel Questions**



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**Workshop Title:** *Harmonizing Monitoring Approaches & KPIs Across CSAs and IAs*  
**Workshop duration:** 1 Hour

**Table 1: Overview of SLIDO Polls & Audience Engagement**

SLIDO Poll #	Session	Question	Response Options
<b>Poll #1</b>	Introduction & Context	<i>What is the biggest challenge in monitoring project impact?</i>	<ol style="list-style-type: none"> <li>1. Lack of comparable indicators across projects</li> <li>2. Difficulty measuring long-term impact</li> <li>3. Lack of alignment with governance, policy needs &amp; funding</li> <li>4. Gaps in technological capacity for real-time monitoring</li> </ol>
<b>Poll #2</b>	Panel Discussion 1: IA Perspectives on KPIs & Monitoring Challenges	<i>What is the biggest challenge in KPI alignment across projects?</i>	<ol style="list-style-type: none"> <li>1. Standardizing KPIs across regions</li> <li>2. Ensuring long-term impact tracking</li> <li>3. Aligning KPIs with governance &amp; policy needs</li> <li>4. Making indicators practical for implementation</li> </ol>
<b>Poll #3</b>	Panel Discussion 2: Ensuring KPI Adoption & Integration into IAs	<i>What would most help IAs implement effective KPI tracking?</i>	<ol style="list-style-type: none"> <li>1. More standardized indicator sets</li> <li>2. Better real-time data collection tools</li> <li>3. Greater policy alignment &amp; integration</li> <li>4. More funding for long-term monitoring</li> </ol>

**Table 2: Overview of Panel Discussion Questions**

**Panel 1: IA Perspectives on KPIs & Monitoring Challenges (12-14 min) – one question per panelist**



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Question #	Question	Targeted Respondents
1	<i>What are the most critical KPIs currently used in your project?</i>	Alex Ziemba, ULTFARMS
2	<i>Which KPIs align well with the Mission Ocean objectives?</i>	Sophie Jensen, BIOPROTECT
3	<i>What challenges do you face in measuring long-term impact?</i>	Marton Pesel, DALIA
4	<i>How do external PESTEL factors (policy shifts, funding, legal frameworks) influence KPI tracking?</i>	IA Representatives
5	<i>Are there overlooked dimensions in the monitoring frameworks that should be integrated?</i>	Lorenzo Proia, SEACURE

**Panel 2: Ensuring KPI Adoption & Integration into IAs (12-14 min); one question per panelist**

Question #	Question	Targeted Respondents
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1	<i>What is needed to formulate a blueprint for harmonized monitoring approaches in IAs?</i>	IA Representatives
2	<i>How can we ensure that KPIs remain flexible yet standardized across different sea basins?</i>	Uroš Novak, REMEDIES
3	<i>How can IAs continue monitoring efforts beyond the project funding period?</i>	Sophie Jensen, BIOPROTECT Marton Pesel, DALIA
4	<i>What are the data gaps, and how can we address them collectively?</i>	IA Representatives
5	<i>What resources (funding, technology, training) would help in scaling impact measurement?</i>	Alex Ziemba, ULTFARMS

## 5.2. PRESENTATIONS

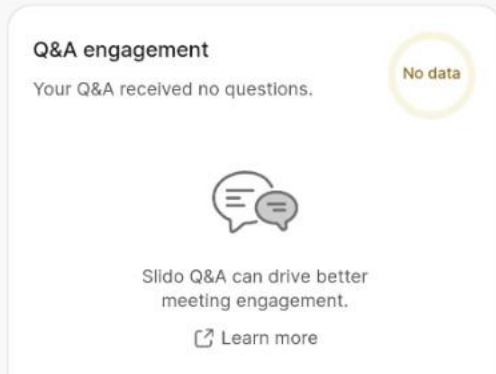
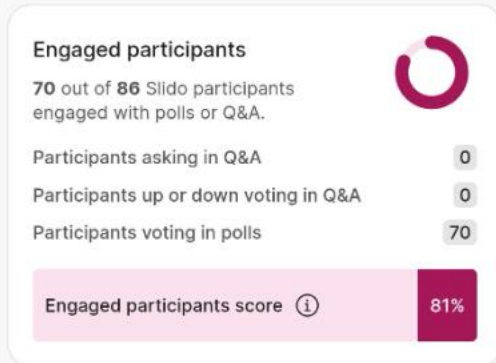
You can find the presentations from the workshop here:

[https://bluemissionbanos.eu/wp-content/uploads/2025/05/D5.4\\_Annex\\_2\\_Presentations.pdf](https://bluemissionbanos.eu/wp-content/uploads/2025/05/D5.4_Annex_2_Presentations.pdf)

## 5.3. POLL RESULTS



## Harmonizing Monitoring Approaches & KPIs Across CSAs and IAs



Where is your company based?

53 responses 47 participants



slido

What sector do you work in?

72 responses 50 participants



slido



Are you involved in a Mission Ocean project?

60 votes 60 participants

Yes - 49 votes



No - 11 votes



slido

What would most help Mission Ocean projects implement effective KPI tracking? Please rank from most helpful (1) to least helpful (4).

25 votes 25 participants

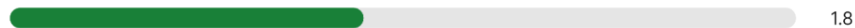
1. More standardised indicator sets.



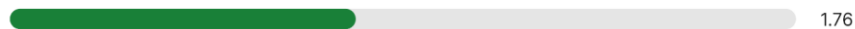
2. More funding for long-term monitoring.



3. Greater policy alignment & integration.



4. Better real-time data collection tools.

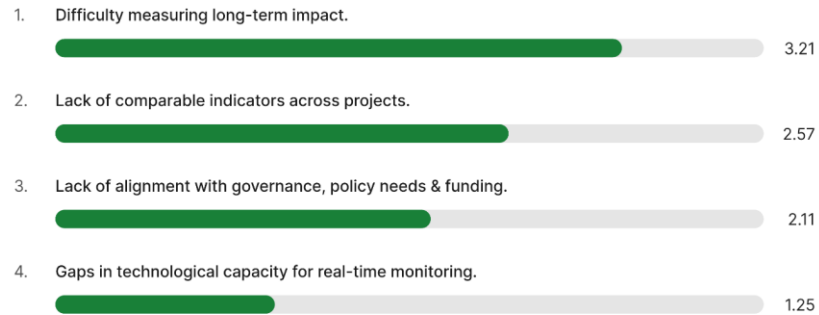


slido



What is the biggest challenge in monitoring project impact? Please rank from most challenging (1) to least challenging (4).

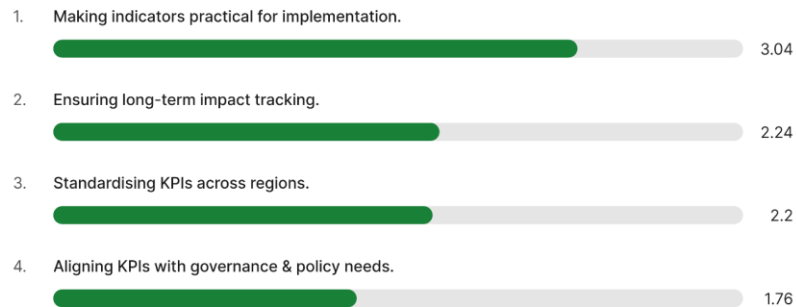
44 votes 44 participants



slido

What is the biggest challenge in KPI alignment across projects? Please rank from most challenging (1) to least challenging (4).

25 votes 25 participants



slido

