Summary

DELIVERABLE 3.2

SYNTHESIS AND DETAILED ASSESSMENT OF ECOLOGY-BASED TOOLS TO SUPPORT MPA PRACTITIONERS

Blue4all

CONTENT

This deliverable presents a **comprehensive inventory** and **semi-quantitative assessment** of digital tools equipped with the necessary analytical capabilities to support MPA managers and decision-makers, placing a special emphasis on **user experience** and the challenges faced by end users when interacting with these tools. The **decision support tools (DSTs)** assessed aid in integrating ecological and environmental knowledge into the design and management of MPAs.

DSTs are often developed in relative isolation within academia and shaped primarily by the perspectives of their scientifically minded developers. Therefore, DSTs often fail to account for the practical needs and expectations of the end users they are intended to support. For DSTs to be effectively applied in conservation and spatial planning, they must bridge a gap between the scientific knowledge of their developers, and the decision-making processes of MPA managers. This deliverable therefore highlights the importance of making these tools **practical and accessible to end users**, regardless of their technical background.

Blue4all

blue4all.eu
@BLUE4ALL

ASSESSMENT

The assessment covered 19 digital tools that can support the integration and analysis of ecological and environmental information to support planning. Tools were evaluated using four main criteria: user-friendliness, the nature of data available and required and of outputs provided, accessibility, and technical aspects.

Assessed tools demonstrated **7 distinctive analytical capabilities**:

1. Cumulative effects assessment of human activities and pressures
2. Identification and prioritisation of ecologically and biologically significant areas
3. Zoning and spatial optimisation
4. Climate change vulnerability evaluation
5. Connectivity
6. Ecosystem services assessment
7. Area-based conservation measures assessment

Two dimensions — **connectivity** and **climate change vulnerability** — are highlighted as particularly pressing and poorly addressed dimensions that can be tackled effectively using DSTs.
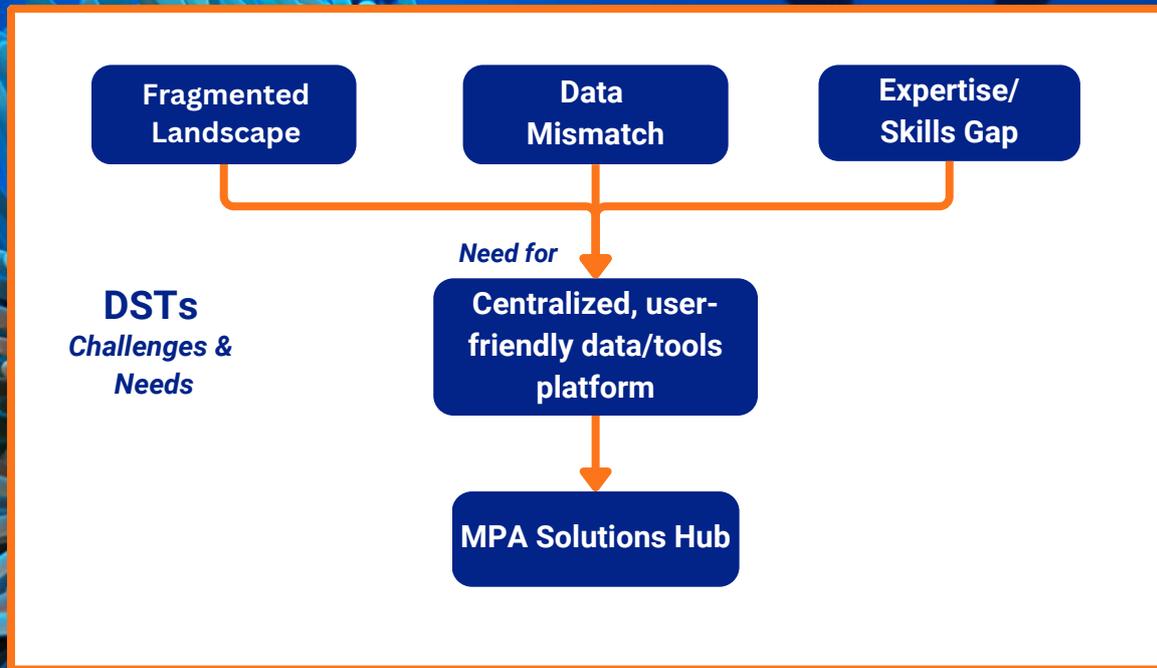
Connectivity

Connectivity is a key factor in maintaining the structure, functioning and resilience of ecosystems. Despite this, it yet has to be fully integrated into the design and management practices of European MPAs.

DSTs can address this by providing the necessary analytical frameworks to incorporate connectivity in MPA planning and management. This is important for defining spatial arrangements and ecological coherence of MPA networks, enabling conservation outcomes beyond local boundaries, taking a network approach to marine protection.

Climate Change Vulnerability Evaluation

Integrating climate change vulnerability evaluation into MPA processes is vital for addressing the escalating impacts of global change on marine ecosystems, but only a limited number of tools can analyse this, and the ones that do require significant expertise and other resources.

By addressing climate change vulnerabilities with DSTs, decision-makers can ensure that MPAs remain resilient in the face of large uncertainties, helping safeguards marine biodiversity and ES long-term.

DSTs
Challenges & Needs

Fragmented Landscape

Data Mismatch

Expertise/ Skills Gap

Need for

Centralized, user-friendly data/tools platform

MPA Solutions Hub

CHALLENGES

Main challenges within DSTs include :

1 Fragmented Tool Landscape

The number of tools designed to analyse ecological and environmental processes and inform decision-making in spatial planning and conservation has grown rapidly over the past decade. New tools are continuously produced and published, making it challenging to stay up to date on the latest advances, and resulting in overlooked, inaccessible tools for end users.

2 Mismatch between Data Availability and Data Requirements

Most DSTs are data-intensive and applying them to new contexts outside of the geographic areas they were initially designed for requires access to suitable data specifically to these new regions or identifying adequate replacements and proxies. There are data platforms that provide centralised access to comprehensive and reliable data sets, which can overcome data deficiencies.

3 Expertise/Skills Gap for Tool Implementation by End Users

Tools and tool/data platforms often require advanced analytical skills and expertise, and without its direct usability of the tools and platforms is limited. To address this gap, it is important to provide user-friendly applications, simplifying processing, harmonisation and visualisation of retrieved data.

RECOMMENDATIONS

To effectively address these challenges, there is a need for **advanced, centralised, user focused, and integrating digital platforms**, which are capable of inventorying, classifying, and assessing tools. This will aid MPA managers and decision-makers in identifying and leveraging the most suitable tools for their specific needs.

Platforms need to incorporate a **multidimensional, bottom-up approach** – incorporating needs, expectations and end user-perspectives – to tool assessment, offering tailored guidance for end users to select tools.

User-friendly tools, along with **training programs and capacity building initiatives**, need to be prioritised, so that the gap between complex tool functionality and practical needs of MPA managers can be bridged.

Connecting tools through **interoperable systems and shared standards** will allow MPA managers and decision-makers to leverage the strength of multiple tools simultaneously, eventually enabling more comprehensive and effective decision-making processes.

NEXT STEPS

To address these needs, a **MPA Blueprint Platform** is being designed within Blue4all. The platform centralises and evaluates the most relevant tools and resources and facilitates the selection process, and additionally creates an integrative environment encouraging collaboration among tool developers.

The platform is set to launch **soon!**