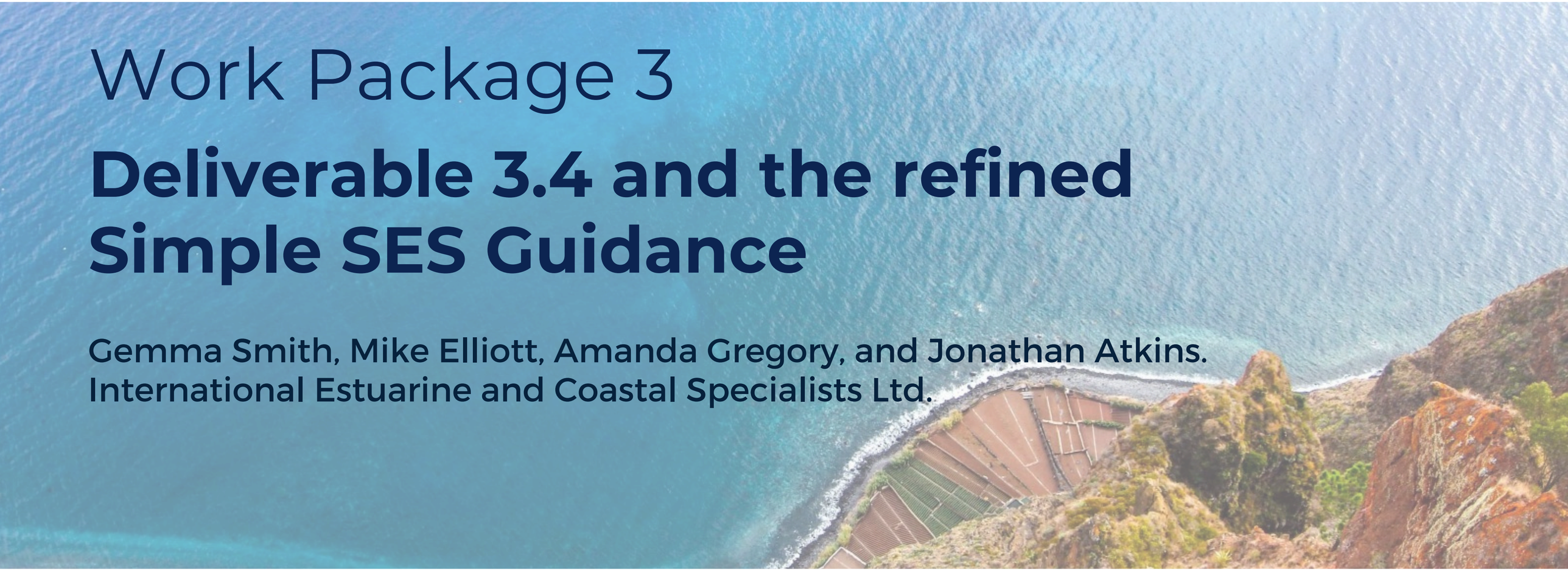

# Work Package 3

# Deliverable 3.4 and the refined Simple SES Guidance

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Funded by the European Union

# Deliverable 3.4

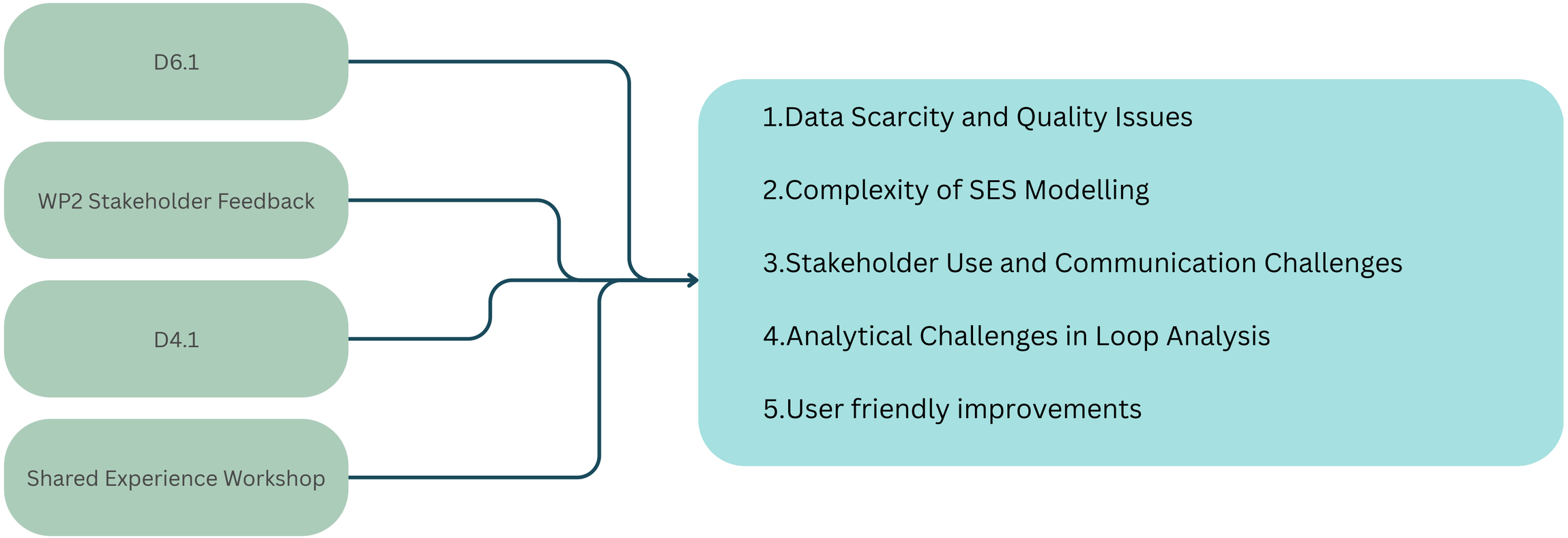
- Documentation of refinement process
- Actions taken upon feedback
- Recommendations for DSS integration



MARINE SABRES

## Table of Contents

# Part A: Key Improvements



# Part B: Refinement documentation

- Refinement workshops with DAs
- Produced latest iteration of the model produced
- Feedback included in the guidance refinement


# Part C: Guidance Document

- New structure with clear, concise sections.
- Introduction of standard operating procedures (SOPs) as a structure of the approach.
- Addressed all feedback received to date

# Introduction to the Simple SES Approach

## OBJECTIVES:

The Simple Social-Ecological System (sSES) approach aims to support informed decision-making in marine management by providing a comprehensive understanding of the interconnectedness between human activities and the marine environment. To do this, the approach:

- promotes iterative learning about a social-ecological system;
- engages stakeholders with the management process;
- aims to identify the underlying causes of marine management challenges and potential Points for Management Intervention(s);
- informs the development and implementation of effective Response Measures that contribute to achieving desired environmental and societal outcomes.

## DESCRIPTION:

The sSES is a marine management decision support tool comprised of multiple steps which uses systems thinking tools to frame the social-ecological system. It is based on the existing SES conceptual model of the Integrated Systems Analysis (ISA) framework (Elliott, et al., 2020) and incorporates best practices from other SES approaches. It uses the cause-consequence-response DAPSI(W)R(M) framework (Drivers, Activities, Pressures, State changes, Impacts (on Welfare), and Responses (as management Measures)) to structure the analysis of the social-ecological system.

The approach includes Causal Loop Diagrams (CLDs) as a tool, to visually represent complex relationships and feedback loops within the system. The approach is designed to be iterative, with outputs from one iteration informing the next, promoting both adaptive management and learning from experience.

## WHAT ARE THE OUTPUTS OF THE APPROACH?

The sSES will provide a visual representation of the social-ecological system in the form of CLDs, highlighting key relationships, feedback loops, and potential points where management responses may be most effective. The use of CLDs in various applications has identified underlying causes of management problems and potential interventions based on system analysis (Barbrook-Johnson and Penn, 2022).

The recommendations for Response Measures, including specific actions, policies, and strategies can be developed from the sSES process to address the identified issues and challenges. Furthermore, this guidance document gives advice on outputs including reports and presentations that communicate findings and recommendations to stakeholders and decision makers.

## WHO ARE THE INTENDED USERS?

The primary users of the sSES DST, for whom it has been designed, are marine managers and practitioners who are responsible for developing and implementing marine management plans and strategies. It will also support scientists and researchers who study social-ecological systems and contribute to marine management decision-making.

While other stakeholders may not directly use the guidance or the sSES approach, they would be consumers of its products. The sSES provides clear guidelines regarding how to communicate these findings to stakeholders who have an interest in, or who are affected by, marine management decisions, including industry representatives, NGOs, and local communities.

# Introduction to the Simple SES Approach

## WHAT PURPOSE WILL THIS APPROACH SERVE?

This approach will provide end-users with a structured procedure to analyse complex marine management issues, using the DAPSI(W)R(M) cause-consequence-response framework and systems thinking tools to reduce the perceived complexity. This approach includes creating CLDs that visually represent relationships and feedback loops within the system, and which in turn can be used as communication tools to enhance understanding by, and engagement with, relevant actors.

The approach facilitates identifying data gaps and encourages the use of various data sources, including scientific data, local knowledge, and expert judgment. Moreover, the approach supports stakeholder engagement throughout the Simple SES process, promoting collaborative decision-making and shared ownership.

## WHAT ARE THE TIME COMMITMENTS?

The sSES process can be undertaken at a pace appropriate to available effort capacity. The minimum time commitment could be one week, to trial a model based on user knowledge and make a solely qualitative model based upon expert and stakeholder opinion. The number of people involved, resources of the users, and preferred style of conducting the approach may all determine the time duration of this process. Typically, the more time invested in applying the model, the more learning and understanding will be gained. In the space of three months, the three steps (Setting priorities, gathering data, and using the information) of the Simple SES could be completed, and response measures designed, based upon a data-informed approach.

## FUNDAMENTS OF A ‘SYSTEMS APPROACH’:

Systems Thinking is a trans-discipline that embraces several fundamental concepts that represent a ‘Systems Approach’ (Reynolds and Howell, 2020). Whilst these underpinning concepts may vary and change in significance with different applications of Systems Thinking tools, in this approach we highlight some core principles to add the necessary context for users. Several fundamentals of Systems Thinking underpin the Simple SES approach including consideration of interconnections, boundaries of a system, feedback, emergence, communication, and holism. For more information regarding Systems Thinking, see Briefing Paper 9.

## KEY CONSIDERATIONS:

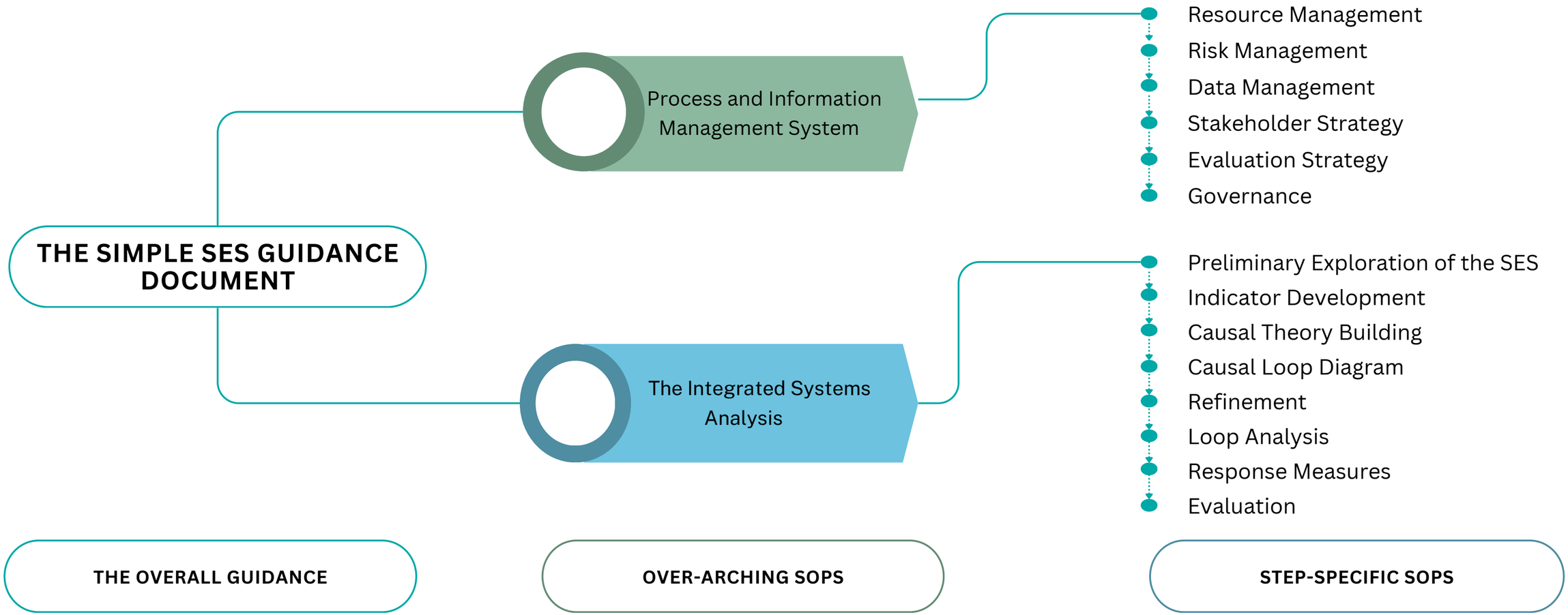
Throughout the SimpleSES process, it is recommended to maintain focus on three key aspects:

- Iteration: each step should be revisited and refined as new information emerges;
- Confidence: consistently assess confidence levels in data and relationships;
- Reflection: regularly pause to evaluate assumptions and decisions.

## HOW TO READ THIS DOCUMENT:

This guidance document centres on the use of overarching and individual Standard Operating Procedures (SOPs). To navigate this guidance document, the user should begin by reviewing the two overarching SOPs which together provide a comprehensive overview of the sSES: one covers the Process and Information Management System (PIMS), while the other details the Integrated Systems Analysis (ISA). The individual SOPs instruct each step of the PIMS and ISA. Figure 1 provides an overview of these two overarching SOPs.

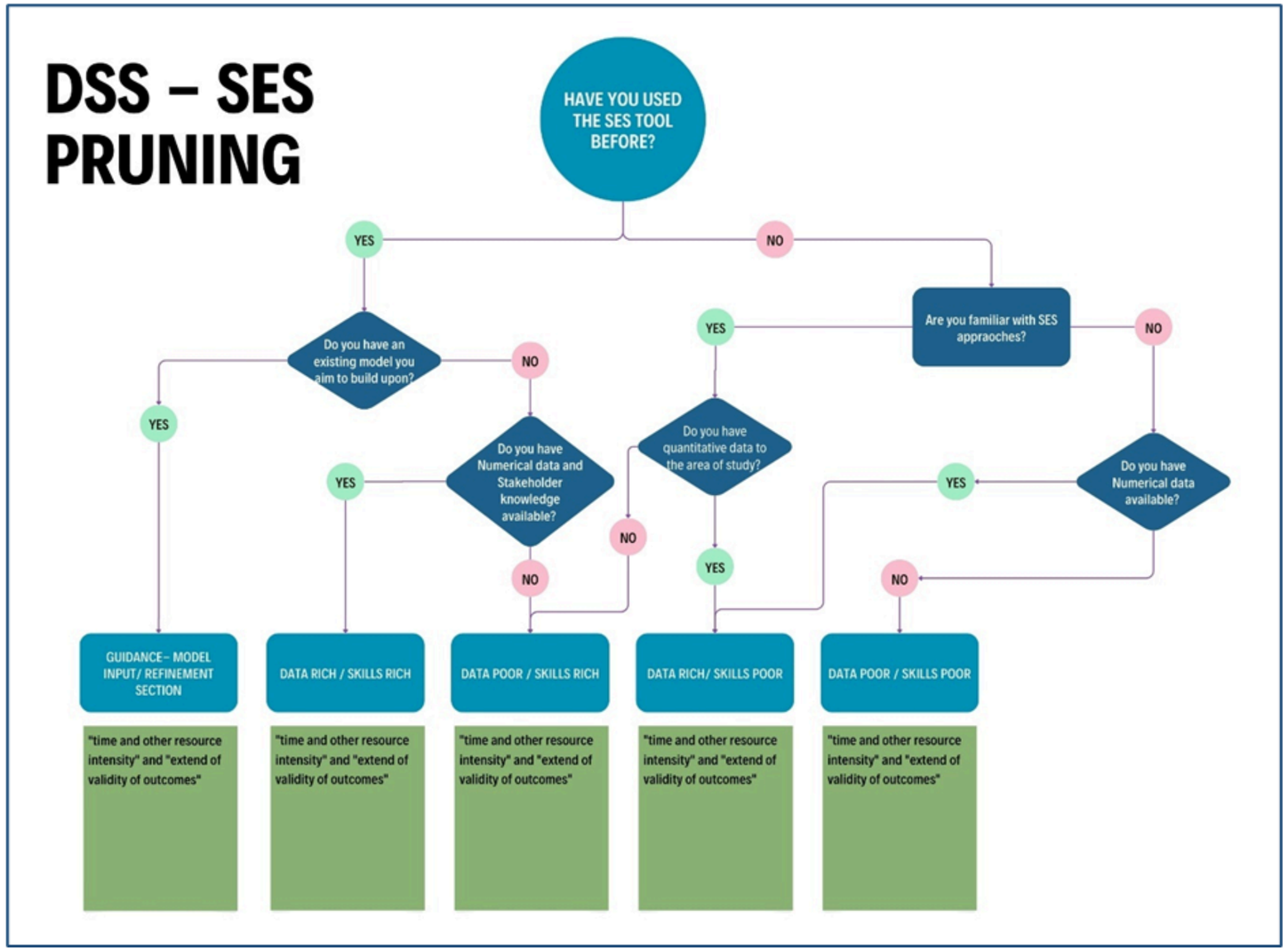
# Schematic of the Simple SES guidance




In the corner of each SOP you can track your progress of where you are in the Simple SES process by referring to this progress bar in the bottom right corner. The darker circle indicates your progress.

# Part D: Recommendations for WP6

- Integration of SOPs in to the DSS
- Case study illustration of the approach
- Possibility of AI to assist users in DAPSI(W)R(M) indicator development
- Tailored guidance to the user needs.



# WP3 Summary

## T3.1 - Completed

Literature Review, including a SWOT analysis of existing SES frameworks.
Development of the Simple SES approach.

## T3.2 - Completed

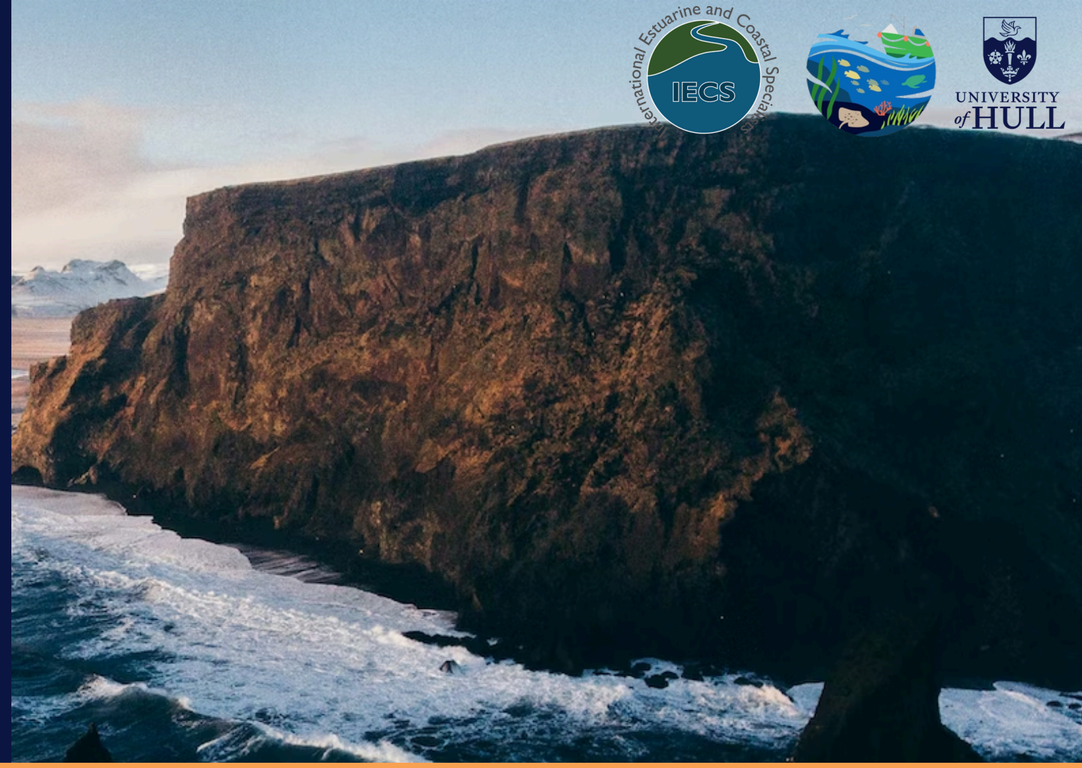
Simple SES documentation and supporting briefing papers on cross cutting themes.

## T3.3 - Final stages (Deliverable 3.4)

Refinement of the Simple SES and delivery to WP6 to be incorporated in to the Decision Support System.

| |
|---|
| **Revision of SES guidance based on D4.1 outputs** |
| **Refinement process with the DAs** |
| **Shared experience workshop (milestone 3.3)** |
| **Draft Guidance shared with Consortium** |
| **Final simple SES guidance is completed and shared with the consortium.** |
| **Information sharing with WP2 to communicate the Simple SES approach with Stakeholders** |
| **Simple SES guidance open to reviewers for comments and amendments.** |
| **Submit D3.4. and Deliver to WP6 for the DSS..** |
| **Continue work work with WPs in delivering for the Simple SES in the decision support system.** |

# WHAT DO YOU PRIORITISE IN MARINE MANAGEMENT?



**If you agree that understanding the priorities of managers can better inform the governance of marine social-ecological systems, then this study may be of interest!**

MARINE SABRES

*Aiming to reverse biodiversity decline by strengthening the conservation of coastal and marine areas, balancing human and ecosystem needs, and upscaling ecosystem-based management*

# Thank you!

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