Report

Joint ACs – SURIMI Workshop

Online via Zoom

Friday 14 November 2025, 9:30 – 12:30 CET

Opening session: Welcome, agenda and introduction to SURIMI

Slides presented during the workshop: LINK

1. Welcome from AC – Mo Mathies, NWWAC Executive Secretariat

Mo Mathies, NWWAC Executive Secretary, welcomed the participants and thanked them for their engagement, highlighting the importance of Advisory Councils' members' expertise in guiding the project. She emphasised that this workshop offers not only an update on the project's progress, but also a valuable opportunity to share knowledge and ensure that the models under development accurately reflect the real-world challenges and priorities of the industry.

2. Objectives of workshop and agenda – Ana Rodriguez, European Marine Board

Ana Rodriguez (EMB), lead for the stakeholder engagement work package of the SURIMI project, opened the session. She welcomed participants on behalf of all project partners and expressed appreciation for the strong attendance. She noted the importance of having more Advisory Councils' representation, which is now easier thanks to the availability of interpreters.

A. Rodriguez explained that the workshop aimed to introduce the SURIMI project, to share information on the scientific fisheries management models that will be integrated, to collect input from participants to support the development and design of the tool, and to answer any questions.

3. Introduction to SURIMI project and models – Patrycja Antosz, NORCE

Patrycja Antosz, coordinator of the SURIMI project, explained that the project focuses on implementing socio-ecological models into the European Digital Twin of the Ocean to support real-world problem solving and policy development.

She outlined that SURIMI is a Horizon Europe Mission "Ocean and Waters" research and innovation action, which aims to reach a relatively high technology readiness level by demonstrating the usability of the tools being developed. The project began in May 2024, is now at its halfway point, and will run until April 2027, meaning there will still be many opportunities for stakeholders to engage and provide feedback. NORCE, which is based in Norway, leads the project, with eight partners from seven European countries and a budget of just under €3.5 million.

P. Antosz explained that the primary goal is to develop the SURIMI toolbox, a set of socio-ecological models relevant to understanding fisheries activities. These models will cover both ecological and social aspects and will be accompanied by assessment and policy modules, enabling users to retrieve information and simulate the likely outcomes of different "what-if" scenarios. The toolbox will be available as an online, user-friendly interface that packages all models and data in an interactive environment.

The project brings together several existing and scientifically accepted models, supplemented by some new ones, in order to create an integrated picture of the dynamics of fisheries as a complex socio-ecological system. She briefly outlined the purpose of each primary model: Ecopath with Ecosim for representing marine ecology and species interactions; CMSY++ for estimating maximum sustainable yield and stock productivity; the POSEIDON model for fishers' behaviour across different types of fisheries; and models representing market prices and the broader value chain from catch to consumer. By combining these, the project aims to support the exploration of management interventions that benefit both ecosystems and the various actors involved.

P. Antosz went on to explain that the combined models will be made available through the European Digital Twin of the Ocean, an advanced virtual infrastructure developed by the European Commission. She provided an overview of digital twins as tools for simulating "what-if" scenarios in complex systems. The Digital Twin of the Ocean integrates observations, data, AI tools, and high-performance modelling in a single environment, enabling users to explore evidence-based decisions. By onboarding SURIMI's models to this platform, the project hopes to reach a wide range of stakeholders beyond those directly involved in fisheries.

She summarised the project's planned value chain: integrating marine monitoring data, combining socio-ecological models, adding predictive "what-if" modelling, and using these tools to support more sustainable fisheries management. This, in turn, is expected to contribute to healthier oceans, more stable and profitable fisheries, and more sustainable consumer behaviour.

She concluded by thanking participants for attending, stressing the project's strong interest in stakeholder engagement. She encouraged participants to provide honest feedback so that the tools can be tailored to users' needs while development is still ongoing.

To conclude the introduction to the SURIMI project session, A. Rodriguez showed two videos which briefly describe the Surimi Project.

- official SURIMI video
- intro to SURIM models video

A question was raised concerning the integration of the different models. It was noted that the models appeared to function quite separately and asked how the project team ensured that the underlying hypotheses of the models were compatible. It was highlighted that although each

model individually had been validated, combining four or five of them could be challenging, and clarifications were sought on what work had been undertaken to verify that the merged system would accurately reflect real ocean dynamics.

A SURIMI representative, explained that, while a detailed technical discussion would be lengthy, the team had built an interconnected modelling system in which the ecological, fisheries, and value chain components run sequentially and are linked through information exchange. It was emphasised that considerable effort had gone into ensuring that the models align and that their assumptions fit together properly. It was added that the project remains partly experimental, as this is the first time such a combination has been attempted, and that the European Digital Twin of the Ocean infrastructure is being used as a flexible environment for model interoperability, describing it as "a kind of Lego box." Early indications suggest that the approach is working well. The representative noted that more detailed explanations could be provided later in the meeting if needed and that a later slide in the workshop would provide further clarification on how the models interact.

Modelling session: diving deeper in the models

1. Intro to the modelling session

A. Rodriguez explained that the models used in SURIMI are established expert fisheries models that have been implemented individually worldwide to support fisheries management. She highlighted that the novelty of SURIMI lies in combining these models so that they can exchange information and be used together. She noted that the current case study area is the Western Mediterranean. While the modelling approach could be applied to other areas, each case study requires specific parameterisation, which is a time-consuming process.

A. Rodriguez then outlined the next steps in the session, explaining that for each model, a short video of a few minutes would be shown to provide more details, including strengths and weaknesses of each mode, examples of where they have been used and advantages of combining the models. Each model video would be followed by a short Q&A for each model.

2. POSEIDON [POSEIDON video]

A question was raised regarding the POSEIDON model, specifically about the source and type of economic data used. The participant wondered whether the model relies on existing data, such as from the EU Data Collection Framework, and whether any additional data processing or refinement would be undertaken.

A SURIMI representative explained that data collection for the Western Mediterranean case study is still ongoing. The economic data required mainly concern vessel operating costs. Although he had not yet collected the data, it was confirmed that such data exist at the European level and the plan is to use them largely as-is, without extensive additional processing.

Clarification was sought on whether the operational data would be available at the individual vessel level or aggregated by fleet segments, as fleet-segment data are typically more useful for analysing trends and regional economic performance. A SURIMI representative replied that individual vessel data are unlikely to be available, so the data will need to be aggregated, with individual costs inferred from that aggregation. It was noted that if individual vessel data were available, it would be useful to integrate that into POSEIDON.

3. CMSY++ [CMSY++ video]

Participants had no questions after watching the video.

4. Ecopath with Ecosim (EwE) [EwE video]

Participants asked no questions after watching the video.

5. Value Chain [Value Chain video]

A participant asked how the economic data for the value chain model are obtained and how precisely they are gathered. A SURIMI representative explained that the study for the Western Mediterranean is based on an extensive socioeconomic study, including interviews and reports from Catalonia and France, particularly referencing to a paper by Mikel Ortega. The process involved comparing official reports, landings data, and internal statistics. It was emphasised that the value chain model is necessarily a simplification, intended to provide an indicative picture of value distribution along the chain, and the SURIMI representative offered to circulate the paper as a reference if anyone wanted.

It was then asked whether recreational fisheries data are incorporated into any of the models, noting that recreational fishing has distinct economic and ecological characteristics compared to commercial fishing. A SURIMI representative responded that, for the Catalan area, recreational fisheries data are scarce and were not included in the current value chain model. Another SURIMI representative clarified that recreational fishing can be incorporated into Ecopath with EcoSim, depending on data availability. A third SURIMI representative added that recreational fisheries can also be included in stock assessment models if catch data per species are available, though the effect is usually on catch magnitude rather than trends. It was then noted that Poseidon has not been used to model recreational fisheries at the individual agent level, though it could theoretically be done. It was highlighted that including recreational fisheries is desirable, but data limitations create uncertainties that the project will aim to quantify in scenario modelling.

A participant explained that, from January, all recreational fishers in EU coastal countries are required to report catches electronically via an app, mainly for species of commercial interest, and that this system will provide more robust data for models. Two SURIMI representative confirmed that recreational fisheries are now officially included in the EU fisheries data collection framework, with member states reporting catch data, though the collection method varies. It was added that roughly half of the coastal states use the EU app, while the others develop their own systems, but all must submit monthly accumulated data to the Commission, which checks compliance with minimum criteria.

6. System Dynamics model [System Dynamics model video]

A participant asked whether data gaps in the model are filled with collected real data or if the model “hallucinates” missing data. A SURIMI representative clarified that the model does not generate data on its own; any trends applied to fill gaps are a deliberate choice by the modeller, not automatic. Another SURIMI representative added a practical example from the Western Mediterranean: fish market prices are based on historical data where available, and on supply–demand dynamics where data are missing, which are then fed back into the models.

It was then asked whether the models treat different fisheries (i.e., pelagic, artisanal, industrial) differently, given the variability in data quality and availability. A SURIMI representative responded that all fleets are represented in Ecopath with EcoSim, but two fleets (Spanish purse seiners and bottom trawlers) are modelled individually in Poseidon to capture vessel-specific behaviour. Other fleets are represented more abstractly in EcoSim. It was explained that the aim is to combine models to leverage the strengths of each: Ecosim captures ecological dynamics, Poseidon models individual fisher behaviour, and the models communicate with each other during simulations.

Another participant highlighted the complexity of the Western Mediterranean fleet and port diversity, noting challenges in socio-economic data and practical application. SURIMI representatives acknowledged these challenges, emphasising that Western Mediterranean is relatively data-rich but still complex. They noted the time lag in data collection (currently about two years) and suggested exploring "what-if" scenarios to quantify uncertainties in models due to delayed or incomplete data. It was added that the modelling framework allows for local models to behave differently by fleet or area, embracing system diversity and complexity rather than forcing a single high-level representation.

Online tool and feedback session

1. Introduction to online tool

Ana Rodriguez introduced the next part of the workshop, focusing on the online tool that participants would use to interact with the combined models. The session aimed to provide a short introduction to the tool and collect feedback from participants. Aristea Zafeiropoulou, the SURIMI partner in charge of developing the online interface, explained that the tool is an interactive, web-based platform designed to connect science and policy, allowing users to test "what-if" scenarios. It translates complex model outputs into visual dashboards, including maps and charts, and is designed to be user-friendly for different types of users while promoting collaboration among participants from different domains.

Ana Rodriguez emphasised that the main goal of the SURIMI project is to combine well-established models, previously used in isolation, so that they can communicate with each other and provide indications of future trends, despite data limitations or model complexity. The session then moved on to feedback collection using Mural, an online whiteboard. Participants were shown a practice Mural to familiarise themselves with the tool.

2. Working on questions in Mural

Ana Rodriguez explained that participants would have 30 minutes to work individually on the actual Mural, which contains 11 questions divided into five blocks, with visual reminders of the models displayed at the top for reference. This part of the session was focused on obtaining structured feedback from participants, which will guide the future development of the tools. The questions were provided in English, French and Spanish.

Please see the Annex (page 10) to read the questions asked and the answers provided by Members.

3. Plenary discussion on value of tools for them and whether they would use them

A. Rodriguez invited participants to raise any open questions, concerns, or verbal comments related to their Mural contributions.

A participant stressed the importance of transparency regarding the data used in the models, particularly for sensitive areas such as discards at sea or mesh sizes. It was highlighted that professional representatives often question the source and accuracy of data, making transparency a critical point.

Another participant reflected on his experience as a user, noting that for long-distance fisheries in international waters, it is essential to include data on non-EU fleets to capture the full picture. A SURIMI representative clarified that the current case study focuses on the Western Mediterranean, so this issue is not immediately relevant, but it would be important for future applications.

It was emphasised by a participant the need of training addressed to the administrators, who might use the tool. A SURIMI representative acknowledged this, noting that the purpose of the project is to create a tool that is usable and useful for stakeholders, with proper training and tutorials planned to ensure appropriate use. It was also highlighted the challenge of integrating the models with existing infrastructures like the European digital twin of the ocean, over which the project has limited control.

The same participant elaborated on the need to clearly communicate assumptions and uncertainties to users. It was emphasised that for management decisions, such as quota recommendations, the tool should explicitly indicate the assumptions behind outcomes, including fleet behaviour, climate scenarios, and recruitment, and clarify that alternative outcomes are possible depending on these factors. Two SURIMI representatives acknowledged the complexity of this challenge but agreed on its importance. The same participant also highlighted the challenge of assessing the impact of regulations on the fishing sector, noting that formal impact assessments by the Commission take significant time. The two SURIMI representatives suggested that the SURIMI tool could provide an initial idea of the effects of new technical measures, MPAs, or offshore wind parks on fisheries and the environment. They also mentioned that while the uncertainty of model outputs would be high, the tool could still serve as a useful exploratory approach, including assessing potential impacts under different IPCC climate scenarios. Another SURIMI representative agreed that the ensemble of models would be well-suited for exploring the impacts of decisions, although this would require coordination with the DTO infrastructure.

A participant added that in Ireland, there is an increasing need to predict impacts on stocks and dependent communities in advance, rather than only reviewing effects retrospectively, highlighting the value of a tool that could guide decision-making even if it cannot provide definitive answers. A SURIMI representative suggested using potential advice to test scenarios in addition to predicting advice from scenarios, emphasising the complexity of ecosystem modelling and the ultimate goal of the digital twin of the ocean to improve prediction based on environmental variation.

A participant asked about the regularity of updates in the data used in the models, reflecting the interest in keeping the tool aligned with new scientific evidence. A SURIMI representative explained that the models themselves would not change frequently, but updates to climate and fisheries data through the DTO infrastructure would keep the outputs current. This approach allows the models to remain relevant without constant redevelopment, while pioneering the integration of ecological modelling with planning tools.

Another participant returned to the topic of uncertainty, asking how it could be communicated to users without overcomplicating the outputs. It was suggested having a dedicated page or panel within the SURIMI tool that explains uncertainties in detail, separating modelled versus collected data uncertainty, so the main outputs remain clear while users still have access to the underlying uncertainty. It was also noted that if the tool is used for initial exploratory insights, end users would need to actively engage with the uncertainties themselves.

A SURIMI representative responded that limited uncertainty assessments would be included for the most sensitive parameters, leveraging the DTO framework to run multiple simulations efficiently. The challenge of conveying and enabling user interaction with these uncertainties would be addressed gradually, informed by stakeholder feedback. A. Rodriguez added that previous workshops confirmed that uncertainty is a key concern for stakeholders, and that the balance between accessibility in understanding uncertainty and statistical complexity is central to the project.

When the SURIMI project team asked participants if they would trust and use the models, a participant said he would, especially if baseline scenarios were included for users to compare with their own expertise, which would help build trust and facilitate exploration of the tool for management measures. It was also noted that many of the models are already widely used and familiar, which supports user confidence. Another participant added that the tool could serve as a strong basis for discussions and decisions on quota and non-quota stocks, providing long-term forecasts under different catch scenarios. While that participant had initially been cautious about potential misuse by the Commission, it was recognised the tool's potential usefulness for professional representatives.

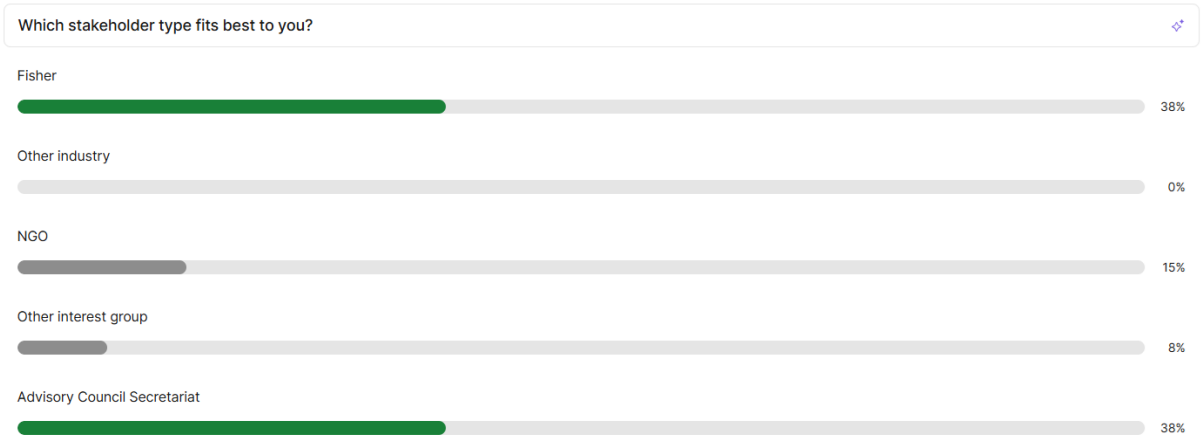
In the closing part of the session, a SURIMI representative highlighted that a key benefit of the tool on the EU DTO platform is that stakeholders can interact with it themselves, testing the impacts of decisions directly. Another SURIMI representative emphasised the trade-offs and priorities inherent in the project, acknowledging that not all pressures on ecosystems (e.g., recreational fisheries, non-EU fishing, environmental pressures) could be included at this stage. It was stressed the responsibility to communicate clearly which factors are included and which are not.

A participant raised concerns about broader environmental and economic pressures beyond fishing, including shipping, tourism, and non-EU catches, and how these might affect markets and ecosystem impacts. A SURIMI representative responded that while the project starts with a limited set of factors (climate change, fisheries, ecosystem dynamics, and market dynamics), the framework is modular and extendable to include additional pressures in the future. Another SURIMI representative added that transparency about limitations is a priority.

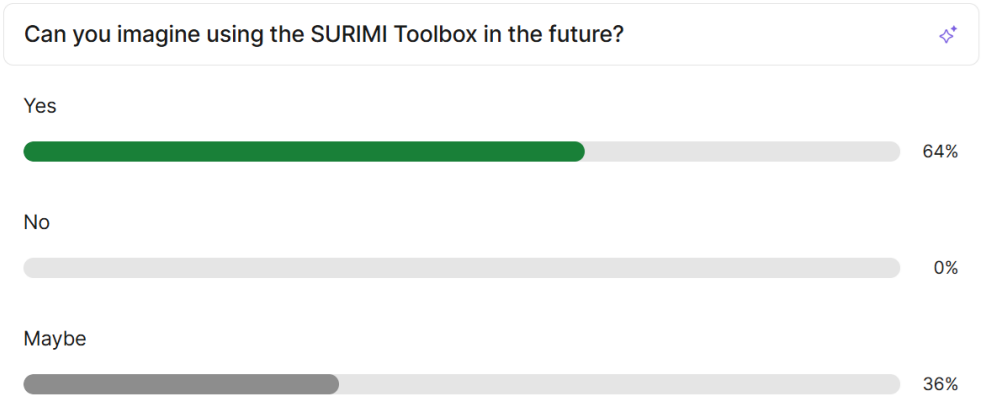
Slido quiz session

A. Rodriguez introduced a quick interactive quiz via Slido to capture stakeholder types and interest in using the SURIMI Toolbox.

Question 1: Which stakeholder type fits best to you?



Question 2: Can you imagine using the SURIMI Toolbox in the future?



Closing and next steps

P. Antosz summarised key takeaways: stakeholders see value in the exercise, emphasised the importance of using real-time and clearly labelled data, combining data types, assessing impacts across multiple dimensions, and effectively communicating trade-offs.

A. Rodriguez then outlined next steps, including keeping stakeholders engaged through an online forum, and planned workshops in Spring 2026 (prototype presentation) and Spring 2027 (final toolbox), noting that translation support would be explored where needed. P. Antosz also reminded that examples of user interfaces and indicators would be presented at the next workshop in 2026.

In the final remarks, Mo Mathies thanked Ana Rodriguez, the interpretation team, and all presenters for organising the workshop and facilitating engagement with stakeholders directly involved in fisheries. She highlighted the importance of connecting with on-the-ground stakeholders rather than just administrations or other interested parties. M. Mathies also offered support for future workshops or training sessions, emphasising the need for language interpretation to ensure all members can fully participate.

Participants

Name		Organisation
Nekane	Alzorriz	ANABAC
Margot	Angibaud	Europeche
Patrycja	Antosz	NORCE
Gentilia	Balaban	Black Sea Secretariat
Fernanda	Bayo	European Marine Board
Ilaria	Bellomo	NWWAC Secretariat
Jose	Beltran	OPP-7 Burela
Claudia	Benassi	Coldiretti
Rosa	Caggiano	MEDAC Secretariat
María	Estalayo	
Francisco	Fernandez	Opromar
Emma	Gomez	ERINN
Sheila	Heymans	European Marine Board
Jan	Kappel	EAA
Rik	Kreeftenberg	
Angela	Larivain	CDPMEM29
Sergio	Lopez	OPP BURELA
Suso	Lourido	OPP77
John	Lynch	ISEFPO
Anna	Marcout	CNPMEM
Llibori	Martinez	IFSUA
Rafel	Mas	
Mo	Mathies	NWWAC Secretariat
Antonis	Mygiakis	
Fabiana	Nogueira	CCRUP Secretariat
Nicolas	Payette	
Raquel	Pereira	Sciaena
Paula	Pérez	
Alexandra	Philippe	EBCD
Marzia	Piron	MEDAC Secretariat
Chloé	Pocheau	CCSUD
Solène	Prévalet	FROM Nord
Alex	Rodriguez	LDAC Secretariat
Ana	Rodriguez	European Marine Board
Alice	Sbrana	
Emanuele	Sciacovelli	Federpesca
Jeroen	Steenbeek	EII
Pauline	Stephan	CNPMEM
Timo	Sz	NORCE
Tamara	Talevska	Secrerariat
Dominique	Thomas	OP CME MMN
Paul	Thomas	Pelagic AC Secretariat
Athanassios	Tsikliras	
Isabel	Vázquez	Region Bretagne
Bertrand	Wendling	SATHOAN
Linda	Zanki Duvnjak	RZ FRIŠKA RIBA P.O.
Aristea		European Marine Board
Marina		

ANNEX – Mural Session: Questions and Answers

The below questions have been asked and answered in English, French, Spanish. All the answers provided in the three languages have been integrated in this Annex.

1. What would you like this tool to help you with?

With these combined models we can test things like what are the impacts of different fishing control strategies or what are the effects of environmental changes. ***Would that be useful for your work?***

- Assessing the role of individual species in the food chain and the biomass levels needed to have a sustainable environment and fisheries
- Assessing the impact of the different IPCC scenarios on the different fish stocks and their subsequent fisheries
- It would be useful to pay particular attention to up-to-date data, socio-economic aspects and an approach that is as tailored as possible.
- Yes, a holistic approach that considers the various aspects and challenges of the fishing sector - integrating local knowledge - would be a valuable tool for making more effective decisions on European fisheries management
- To contribute to show the importance of combining different types of data and information for a better fisheries management
- In an ideal scenario, with the proper data and up to date, might contribute for a "real time management" having in to consideration recent fluctuations
- To have more socio-economic data into consideration
- Yes, it would be very useful for defining the objectives during end-of-year negotiations and for managing non-quota stocks such as seabass.
- Yes, provided that it is adapted to the appropriate working scale.
- Yes, very useful, but the usefulness must be assessed given the regulatory complexity.
- What is the time needed to obtain management guidance with such complex models?
- 1/2 The notion of “decision-making support” needs clarification — what does it mean?
- 2/2 And “evaluation of marine management strategies in EU waters” sounds very ambitious and still vague when phrased like this.
- Yes, it is useful for testing different strategies for fleet segments and seeing the impact.
- The idea of having an intuitive tool for bioeconomic scenario analysis with reliable and appropriate assessment models is positive. The problem lies in the details and understanding issues such as the quality of available data, uncertainties, and the complexity of interactions between different parameters.
- Yes, of course, it can be useful. But as always happens with models, they depend on the quality of the data, and there is a risk of using data that is several years out of date.
- A tool that integrates all bio-economic aspects of fisheries is useful. However, given the complexity of simulation and the degree of error that integrating different models can generate, its final use must be for comparing scenarios and not as a final decision-making tool.
- Interaction with end users (including managers and stakeholders) will be key to the success of this project. If potential users do not understand the tool, they will not use it.

What are the main questions you would like this tool to help you answer?

- What would be the impact of a new Fisheries management regulation on the environment and on fisheries and fishers?

- It is needed an indicator to describe socioeconomic trends and define sustainability objective such as MSY for biological sustainability
- Maybe the impact of some regulations or even fisheries management of certain fisheries on the ecosystem
- How are the different conditions (either stock and socio economics) developing?
- Why do we need so many regulations
- Why do we have such complicated control regulations
- Long-term exploitation strategies for stocks, taking into account all socio-economic and environmental factors.
- A global model integrating efficient socio-economic data and not based solely on environmental models — the link with a real, tangible economic tool is essential if the aim is truly to integrate real socio-economic aspects.
- Measuring different fishing strategies.
- Impact of temporary closures on specific fleet segments.
- Representativeness of the various gears/vessels and exploited fisheries.
- Impact of climate change on migratory stocks and possible fallback options.
- Comparison of different scenarios.
- Being able to decide between different regulatory scenarios.

2. Showing results

We can show you results like: total landings, profit, impacts on species distribution, maximum sustainable yields, impacts on the ecosystem, impacts across the value chain, etc. ***Would this kind of information be useful for you?***

- It would be useful to pay particular attention to up-to-date data, socio-economic aspects and an approach that is as tailored as possible.
- yes, it's always useful to have platform where different type of information can be checked
- yes, but if diversified by fishing techniques, areas and other relevant factors
- The link between socio economics and fish stocks is essential to assess opportunities
- Yes, provided that the limits of the exercise and the underlying assumptions are clearly known.
- Yes, as long as we know which data the analyses are based on, so that the results can be critically assessed.
- Concepts such as "ecosystem impacts" and acceptable thresholds must be clearly defined so that all actors understand them — they must be defined in consultation with professionals.
- Yes — the answer is often yes, but what are the real questions behind this?
- Where do the data come from? Are they complete? Who should they be referred to?
- Will this scatter tools and especially increase data requests?
- It is so complex that I doubt the precision of the results.
- Yes, of course.
- No, the assumptions made by these models mean that the results they produce can only be used for comparative purposes. Based on experience—for example, with the POSEIDON model in RFMOs—the results do not manage to reproduce fishery dynamics. Therefore, specific results such as profits will not be realistic.
- Comparisons between profits (gross and net) by fleet segments and countries can be misleading due to structural differences regarding employment costs, social charges, salaries, as well as how profits are reported (including contributions in kind or not), plus subsidies and support measures.
- It is good to have results broken down into clear categories and to be able to compare them using graphs, etc.

What type of results are most important for your work?

- It is needed an indicator to describe socioeconomic trends and define sustainability objective such as MSY for biological sustainability
- To assess the value of an area or fishery to local economies
- The evolution of total landings and the socio-economic impacts to be expected across the entire value chain, particularly for production.
- The aspect of mobility and behavioural change (trophic chain, interactions) of fishery resources seems innovative here and allows anticipation of future environmental changes and the resulting exploitation.
- Results that help optimise fishing strategies while respecting regulatory constraints.
- Applied management tools for the short, medium, and long term.
- Better understanding of stock assessments: translating scientific language into a form everyone can understand regarding TAC increases/decreases.
- Socio-economic impacts of quota closures, fishing bans, area closures, etc.
- Comparison of different management scenarios in global terms. Not focusing on a specific result that will not accurately characterise reality but using the results to compare scenarios.
- In international fisheries, it would be necessary to have information on non-EU fleets operating in the same fishing grounds to have a complete view of the status of resources and economic yields.
- All those related to recreational fishing.
- Those related to industrial long-distance fishing (in waters outside the EU).

How would you like to see the results? *For example, as pictures or graphs, maps, simple numbers, short text, or a mix of these?*

- Graphs of the biomass of all species in the ecosystem
- Interactive data visualisations with maps and charts
- Mixed, depending on the data
- Important to have in consideration that different types of publics (either from the field or not) might be interest in checking the results
- Graphs with the main economic indicators
- I think I would like to see a single dashboard with an economic, environmental and social panel, all with graphs to see the impact of each scenario
- A mixture would be best
- A mix that allows a clear understanding of where the results come from, in order to interpret them correctly.
- Graphical visualisations are easier to understand than text, which can be more static. If scenarios change, graphs change more automatically than text.
- A mix of elements.
- A combination with the possibility of different visualisation modes for the same type of information.
- A combination of all of these.

3. What would make the tool most useful for you?

What would you like this online tool to be able to do? *For example: compare results between different years; download the data to use elsewhere; or anything else that would make the tool more useful for you.*

- being able to download the data to use in other applications would be useful
- Being able to compare different scenarios in the future to a baseline scenario would be useful

- all of those; also showing the data sources
- Compare results across different years, regions, and fishing methods
- It would be useful to pay particular attention to up-to-date data, socio-economic aspects and an approach that is as tailored as possible.
- A question-and-answer system with scenarios and corresponding model responses.
- An interactive graphical system where variables and results can be adjusted (e.g., years, climate scenario, etc.).
- The ability to extract data in table format to examine details.
- A kind of forum where users can ask questions to the developers behind the tool.
- Clearly highlight the sources used to model the results (data, models, etc.).
- Clearly highlight the limitations of the tool to avoid overly quick or definitive interpretations (e.g., by managers without scientific backgrounds).
- Make available the data used.
- Model outputs by year, by fleet, by region…
- Availability of interactive maps.
- Environmental data sources used.
- Have some examples of typical result presentations.
- Have access to the questions that were asked to stakeholders in the sector.
- Accessibility for fishers as well, in a format they can understand and contribute to with feedback.
- These proposals seem correct to me.
- Create historical data series and comparisons between fisheries in different areas (e.g., cod or hake); download data offline; export graphs to MS Office formats.

The tool uses models that try to show how a complex system works, but there is always some uncertainty in the data and in what we know about the systems. ***Would you like a simple indication of how sure or unsure the results are, or would you like to see more details?***

- I think both would be useful in that a simple explanation might satisfy some users while others may need more detail to inform their own work
- I think the uncertainty should be included in a separate panel to avoid the increased complexity of having so much data. this tool should be for stakeholders and not researchers, so the uncertainty levels are not essential.
- yes, I think that should be clear. Since it can interfere with how and where the results are used
- Yes, and it would be helpful to include a link to the source
- As many details as possible
- To have accurate data available to assess the effects of an impact on a fishery or fisheries
- Both — simplification + the ability to go into details or contact someone who can explain them.
- Both — a simple, easy-to-read indication of uncertainty, with a longer explanation for those who want the details.
- It is useful to calculate the degree of uncertainty.
- Yes, I consider it essential to know the level of uncertainty of the models and the data that supports them.
- It seems essential to provide the system with a certainty indicator, and if possible, with an explanation of it.

What other information about the data or models would you like to see in the tool? *For example: when and where the data were collected; who collected and owns the data; who helped check or confirm the results (such as scientists, fishers, etc.). Please tell us what kind of background information would be useful for you.*

- all the above is useful plus any additional useful links that were encountered during the project

- the sources of data should be included, as well as whether this is modelled or collected data.
- the source of data, date, and amount and so on (I think most of the info about the sources should be clear)
- Yes, the source and when data were collected are needed
- How was collected (example on socio-economics - just based on official statistics or also interviews to fishers and users)
- All those mentioned in the examples.
- Data are at the heart of the tool, and full metadata for all datasets used must be provided — this is fundamental for understanding.
- For the models: the same — understanding results requires understanding all assumptions and approximations behind them.
- Origin of the data.
- Periods when species have the highest market value.
- Identification of periods when catch overruns are most likely.
- Sources of data, types of segmentation (by individual vessels, fleet segments or métiers, flags…), type of source (public administration, scientific institutes, industrial or artisanal fishing organisations, traditional knowledge, scientific sources).
- Frequency of data updates, e.g., price indices (weekly, monthly, annually…).
- It is always useful to know the origin of the data, along with the year in which it was collected.

4. Trusting the tool and its results

Can you think about any decisions you would make using the information about the tool? *For example, about where and when to fish; or telling authorities why a certain management measure might work/not work; etc.? If yes, please specify which type of decisions you can think of taking with the help of the tool.*

- I think the fishers have more precise data when it comes to where to fish. I think this tool could be used to illustrate the impact measures may have. Such measures may be on setting up windfarms or MPAs, new technical measures etc…
- It would be useful for drafting recommendations, as it provides a foundational tool that brings together diverse aspects and collected data.
- Decisions based on the tool results can be taken only if the processed data are really updated because the MAPs measures are significantly changing fast.
- Propose more changes in fisheries management having more clear results to show
- The tool would have multiple uses in informing decisions: 1 Management, 2 assessing new impacts, 3 to value an activity
- A general decision-support tool — but many biases likely due to its complexity.
- The tool could guide our positions during end-of-year TAC & Quota negotiations.
- The tool could help with national management of non-quota species, if the scale is appropriate and results match real-world observations.
- Partly guide or encourage certain fleet segments toward other resources depending on available annual TACs.
- How many EwE (Ecopath with Ecosim) models are needed to reliably represent ecosystems?
- Analyse the socioeconomic impact of adopting management measures in the medium and long term (MSE-HCR…), as well as technical measures (e.g., spatial-temporal closures, modifications to fishing gear to improve selectivity).
- The basic one, I think, would be to anticipate the possible effects of regulations. Considering that in many cases measures are being prescribed that may kill the patient rather than cure them, knowing this in advance can be very useful.
- Basic variations in yearly fishing opportunities (TACs and quotas) in future profitability.

If you wouldn't use the tool for decisions, what would you need to see or know to trust its results?

- Up to date data
- Decisions based on the tool results can be taken only if the processed data are really updated because the MAPs measures are significantly changing fast.
- Knowing the amount of data used and sources
- All initial assumptions and how the variables relate to each other — in a way that managers can understand.
- As mentioned earlier: all information about the data used (precise metadata), and ideally access to the data.
- All information about the assumptions behind the model, for example: assumptions regarding discards for certain stocks; species interaction assumptions; assumptions concerning the impact of management measures on fleets; assumptions on product selling prices; etc.
- Professionals will not trust the tool if it appears to be a "black box" disconnected from the reality of their profession.
- EU and national administrations must be well trained to use the results correctly in their work.
- Summary sheets for species/segments to access key information.
- Integration of the tool and understanding by everyone (Member States, producer organisations, committees, scientists, fishers, and possibly buyers).
- Sheets on regulations by region/gear/species.
- A few examples and results of decisions taken using this tool.
- The origin of the data and its degree of certainty, possible data gaps, and an indication of where the model is strong and where it is weak.

5. Is there anything else you would like to tell us?

- Coming back to the presentation, I think that for stakeholder presentations, starting with a concrete case study could help see how the different models work together and to what result.
- If you are having in mind the future amount of data that will be available in the future regarding the new changes in the control regulation (example - VMS data and more info available from tracking the seafood products)
- how can this tool be practically useful and directly applied by fishing operators in their daily work?
- How to have SSF data well fed in the models, since is the part of the sector that usually is more difficult to track but it's really important
- I am very sceptical about the precision — so many factors come into play, and recreational and illegal fishing are not included.
- Given the complexity of the tool, professional representatives will be very critical of the results.
- Be careful of blind use — for instance by the European Commission, which already proposes measures (e.g., mesh sizes) completely unsuited to the reality of the profession.
- Fear that management will slip even further out of our hands, and that the Commission will hide behind the results to impose unbearable constraints on fishers.
- Beware of the politicisation of certain impacts, such as those of bottom-towed gears — always base assumptions on robust, validated figures and methods.
- Do not lose sight of the weak points of the system: data quality, and not only in terms of accuracy but also timeliness. Running a model with outdated data may be worse than not using it. Also, do not lose sight of the fact that the model should reflect reality, and not the other way around.
- It is very important that the data be as up to date as possible. If not, the tool loses effectiveness.
- Socioeconomic data on fleets must be taken into account. If there are no fishers, there is no fishing. Stakeholders will only engage if they believe the tool is useful.
- In international fisheries, without a level playing field there is no reliability or truthfulness. If the basic activity of ALL fleets operating in the same fishing ground is not reflected, the full picture

cannot be seen (e.g., total removals from the sea, catches, effort, number of vessels…). From that, economic extrapolations can be made, but without basic biological information, the tool cannot be used.

- Use regional databases for international fisheries (FAO, RFMOs…).
- Any scenario tested must consider the entire set of fisheries to assess relative impacts; that is, not isolating a single fishery without considering ecosystem interactions.
- Create relevant and diverse case studies geographically (North and South Atlantic, Mediterranean, West Africa) and by activity (artisanal, offshore, distant-water).
- When integrating recreational fishing data, do it fully—not only catches but also economic aspects (equipment manufacturers, tax payments, travel expenses), and wellbeing aspects (studies show a link between recreational fishing and health), as well as its contribution to European food sovereignty.
- Bio-economic models—for example POSEIDON—tend to use "where is the money" functions. Fleet dynamics involve more complex decisions than simply maximising revenue.
- Other variables such as jobs, large-scale economic impacts, bycatch issues, and vulnerable species interactions must also be considered to have a global view when using the tool for decision-making.

END