North Western Waters Advisory Council (NWWAC)

Minutes

SEAWISE REGIONAL REVIEW WORKSHOP

Paris/Hybrid

Tuesday 11 March 2025

14:00 – 17:30 CET

1. Welcome and introductions

SEAwise coordinator Anna Rindorf opened the session by welcoming the attendees and thanking participants for joining. A brief round of introductions followed.

Rindorf relayed that the SEAwise project, which started in October 2021, aims to pave the way for effective implementation of Ecosystem-Based Fisheries Management (EBFM) in Europe. To do this, the project has worked to develop knowledge and models in support of decision-making. Collaboration with the EU's Advisory Councils, including the NWWAC, has been central to this. Rindorf provided an overview of the SEAwise EBFM framework, which has been adapted from the FAO's categories, and has worked to incorporate stakeholder scoping. As part of this, the project has looked at climate change effects, ecological effects of and on fisheries, socio-economic aspects of fisheries, and spatial management.

Outlining the aims for the day's meeting, Rindorf provided a brief outline of the EBFM Tool and Toolbox being developed as part of the project – the former an accessible tool being developed by Mindfully Wired, the latter more technical tool being developed by the International Council for the Exploration of the Seas (ICES). She highlighted that the Toolbox offered depth, while the Tool provided an overview across different categories.

Rindorf subsequently gave the floor to Jochen Depestele (ILVO), to provide an overview of SEAwise's Celtic Sea analysis, which has been conducted as part of the project's Western Waters Case Study.

2. North Western Waters Case Study

Western Waters Case Study lead, Depestele recapped previous interactions with the NWWAC, including the scoping workshops conducted with stakeholders in 2022. Priority topics for the AC at that point included: wind farms, governance systems, cultural heritage and communities, conservation of retained species e.g. seabass, cod, and sole, and external ecological and human drivers. Depestele explained how these topics have been covered within SEAwise.

Outlining their architecture, parameters, and underpinning assumptions, Depestele presented two key models being used by SEAwise within the North Western Waters Case – FLBEIA and Strath-E2E (SE2E). He relayed that nine commercial fish stocks were included in the FLBEIA models: cod, anglerfish, monkfish, megrim, hake, whiting, and sole. These were mapped to specific fleets and fisheries, grouped by nation, length, and aggregated by gear type, with 156 métiers included. The speaker noted that FLBEIA, which is focused on mixed fisheries, does not incorporate trophic interactions or high resolution spatial dynamics.

SE2E, on the other hand, incorporates trophic interactions, and focuses on the whole ecosystem – from primary production to apex predators, grouping species across trophic levels. Using comparable métiers to FLBEIA, SE2E is being used for 'what if' experiments. For example, if you introduce a landing obligation, what are the effects of this on the entire ecosystem?

Depestele explained that across these two models, six scenarios had been tested by SEAwise: three relating to management and two relating to climate, with a further case specific management scenario to be determined.

The management scenarios are: 1) Status Quo (we continue fishing as we do today), 2) FMSY (Maximum Sustainable Yield, strict implementations of the Landing obligation, assuming perfect compliance), and 3) PGY (Pretty Good Yield – incorporating also a Landing Obligation, and allowing for deviations of 5% above or below MSY). Sharing graphs on the screen Jochen detailed how the various management scenarios affect fishing effort, according to SEAwise's models – with both FMSY and PGY scenarios both entailing a significant effort reduction.

The speaker detailed two climate change scenarios tested – a continuation of current climate (no change), and RCP8.5, which assumes a drastic 'worst-case scenario' with a high degree of warming and continued emissions. Diverging from FLBEIA, SE2E also includes biogeochemical coupling, and accounts for compounding climate change impacts on salinity, nutrient cycling, and nitrate concentrations and consequent productivity changes, with a focus on recruitment and growth. FLBEIA focuses on the relationship between recruitment and Spawning Stock Biomass (SSB), and temperature.

Offering an example assessment, Depestele explained that FLBEIA indicates an inverse relationship between rising temperatures and productivity levels. He continued to present an outline of the predicted effects of different management scenarios. With respect to cod, for example, the Status Quo scenario doesn't see an improvement in cod stocks. However, under scenarios with a Landing Obligation (FMSY and PGY) this situation improves. Capacity for stock recovery is lowered under climate change.

Depestele proceeded to outline additional indicators assessed by SEAwise – for example, with respect to the seabed, in line with Marine Strategy Framework Directive (MSFD) targets. Though still undefined, here SEAwise has assessed the Relative Benthic State, a risk-based indicator. Assuming a threshold of 0.8, currently three habitats don't meet this target. SEAwise has also assessed bycatch risk of Protected, Endangered, and Threatened Species (PETs), alongside a suite of socio-economic indicators.

A brief overview was provided of the changes in effort and demersal fish biomass observed within SE2E, which diverged somewhat from those within FLBEIA. Under the climate change scenarios, SE2E, which includes trophic interactions, indicated a drop in primary production, with implications across the ecosystem, including for fish biomass and biomass of top predators.

Opening the floor to a discussion on the scenarios included thus far, Depestele highlighted aspirations to include an additional scenario. Noting existing calls for a phase out of bottom trawling in MPAs, one suggestion would be a model that simulates a 50% reduction in trawling for beam trawls, otter trawls, and demersal seines, and an increase in effort for passive gears by an order or five. Referencing the NWWAC's Choke Mitigation Tool, Depestele outlined a further possible scenario, whereby effort would be reallocated across métiers, in line with catch compositions. Feedback and discussion on scenarios was invited.

2.1 Discussion

One member queried the reasoning for the analysis of only one climate change scenario, an extreme version of warming. Depestele explained that, in this case, this was on account of data availability and alignment with SE2E. He noted, however, that a less extreme scenario (RCP4.5) had also been assessed by SEAwise, and was available for other models (EcoPath), and in the other case study regions.

A question was posed by an NWWAC member whether a simulation had been run based on area efforts and catch compositions on different grounds. Depestele indicated this had not been assessed. The member queried whether the models accounted for quota swaps or variation in national level allocation patterns – noting, for example, the monthly allocation of quota in Ireland, which contrasts with annual allocations elsewhere, and highlighting the complexity of this picture in reality. Depestele responded by outlining that the models were simulated on an annual catch profile. Participating online Klaas Sys (SEAwise) added that the fleet simulations allowed for modification of fleet effort or the adaptation of fishing opportunities at fleet level.

Noting the focus of cod in the Celtic Sea, the point was made that cod in the Celtic Sea has been on a zero Total Allowable Catch (TAC) for several years, and represents approximately 300 tonnes, out of thousands of tonnes of species that can be landed in the region. Based on this, the member surmised that this focus on cod – an already well-documented stock – may not be realistic, and queried whether other stocks had been assessed by SEAwise.

Depestele clarified that SEAwise has assessed several stocks, however relayed that cod was a large driver under both the FMSY and PGY scenarios – which was not the case for the Status Quo scenario. He noted the possibility of running scenarios without cod or that were effort-based, which has been previously suggested. Sys accepted the difficulty here, while also noting that SEAwise's modelling is based on ICES advice, and agreed reference points. Anna Rindorf added that looking at the climate-dependent recruitment of cod, there were still gaps concerning the relationship between temperature and cod stocks. She relayed that SEAwise has also modelled cod in the Baltic Sea, and had found that closing the fishery

doesn't necessarily lead to recovery. Noting challenges with drawing on the past to predict the future, Rindorf stated it was difficult to say whether cod would recover in the Celtic Sea.

A question was raised relating to the outcomes of the spatial management work by SEAwise, and the previously outlined management scenario entailing a 50% reduction of trawling, an increase in passive gears by an order of five. Depestele clarified the arbitrary nature of these numbers. He noted that a report detailing these results would be available at the end of June. Sys added that this work was still in an exploratory phase, and inspired by the general tendency towards reducing bottom trawling – for example, as with the 30x30 strategy. It was noted, however, that a reduction as such would need to be replaced, hence the increase in netting modelled.

It was queried whether under different climate scenarios, different rates of change for different species existed, and whether positive advice corresponded with positive results. Klaas Sys relayed that, according to SEAwise modelling, whiting and cod were negatively impacted by climate change, and demersal stocks fared worse under climate change within SE2E. Additional models indicated that stocks fished at MSY may not change a lot. In response, the member queried whether stocks with positive advice now exhibited less susceptibility to climate change in the future. Sys indicated that hake and megrim had a positive response. He stated there was no strong evidence for other stocks being negatively impacted, but for the single-stock analysis (with cod and whiting), in line with existing evidence, the indication was that above a certain temperature the larvae die. There were potential climate change implications for species growth also.

A further question was raised relating to the spatially explicit components of the model, and effort displacement. Sys explained that SEAwise's work on species distribution modelling had looked at where species are found in larger and in smaller abundances. This information could be used to mimic catch composition changes. However, due to difficulties accessing Vessel Monitoring Systems (VMS) data, it was difficult to link to métiers. Doing so would be assumption based. However, he noted, including stakeholder information on area use would be incredibly useful, though it was acknowledged that combining data at a high spatial resolution was difficult.

The need for improved understanding of MPAs and their siting was noted. Rindorf detailed modelling that had been conducted by SEAwise in areas beyond the Celtic Sea. She noted the assumption that an reduction of effort in MPAs sees a positive stock effect when – for example, the designated area is one where juveniles are found, and also the impacts outside of the areas - for example, in terms of increased emissions. Based on this, she stated that the take home message was that the benefits of MPAs were mixed. Rindorf continued by outlining that dynamic models run by SEAwise suggested that effects were site dependent.

3. EBFM Tool Overview

Lia ní Aodha provided an overview of the EBFM Tool, which aims to integrate the knowledge developed by SEAwise into an accessible Tool that could be used by a range of stakeholders. Linking this to the aim of SEAwise, which is to build the knowledge base needed for practical

realisation of EBFM in Europe, she outlined that two tools had been developed as part of the project – the EBFM Tool, and the EBFM Toolbox.

Offering clarification on the distinctions between both tools, ní Aodha relayed that while the Toolbox aimed at a much more technical audience, the Tool was intended as a resource for a broad range of stakeholders, including the public. That said, both were underpinned by SEAwise science, and had been designed with the priorities of stakeholders in mind, and based on stakeholder feedback.

Ní Aodha continued by providing an outline of the architecture of the EBFM Tool, which allows for an exploration of trade-offs associated with a range of management and climate scenarios, across a range of social and ecological categories. These, she said, could be explored across each of SEAwise's Case Study regions, and at subregional level in some instances. For example, with respect to the Western Waters Case Study, both the North and South Western Waters could be explored individually. The ultimate aim of the Tool was to support EBFM.
The speaker provided a walk through the EBFM Tool. Hosted on the SEAwise website, the Tool can be accessed in a range of European languages. At the level of the Case Study region the Tool allows for visualisation of the relative change in status across six EBFM categories – stocks, biodiversity, habitats, revenue, communities and well-being, based on
different management and climate scenarios, and over time. Each of these can be explored in more detail within the Tool via a narrative overview. Links to the underlying SEAwise reports and to the EBFM Toolbox were also available to allow for further exploration of the science underpinning the Tool's narrative.

Ní Aodha offered an outline of the various toggles within the Tool, and the scenarios covered. In terms of practical application, she noted that the Tool explicitly includes both social and ecological dimensions and trade-offs across these. It was suggested by the speaker that the Tool could be used in terms of supporting dialogue and understanding, and fostering collaboration among diverse stakeholders.

3.1 Discussion

The floor was opened for questions and feedback. Noting with interest the possibility of adapting the Tool to further scenarios, one member queried whether the Tool could be utilised to explore fleet level implications of, for example, quota allocations. Ní Aodha relayed that the Tool had been built on SEAwise results. Offering further clarification, Anna Rindorf stated that this had not been explored as part of SEAwise, however relayed that SEAwise was working with ICES to include additional parameters in the future, adding that the intention with the EBFM Tool was for it to remain accessible. The EBFM Toolbox, however, grappled with more detailed statistics.

Inviting further discussion, ní Aodha drew attention to the communication of the uncertainty underlying the information in the Tool. She relayed that currently droplets were being tested as a mode to communicate certainty and coverage, and invited members to feedback on this as they navigated the Tool.

Clarification was requested as to the ultimate end user and primary audience of the Tool. Ní Aodha outlined that the Tool was aimed at a range of stakeholders, including the general public, and people that did not necessarily engage with fisheries on a day-to-day basis.

A query was raised as to whether the Tool could incorporate instances of overfishing by some countries. Anna Rindorf noted that all the data used by SEAwise came from ICES.

The issue of increased mesh sizes to avoid catches of juveniles and support recruitment was raised by another member, who queried whether the model could predict effects and support improved decision making, in the absence of data. Offering boarfish as an example, The interaction of these long-lived species with other species, in terms of predation, was noted.
The member concluded that there were potentially several uses for the Tool, and asked for clarification concerning the development of the scenarios, and how data was fed to the Tool. Drawing on whiting and sprat management as an example, Rindorf noted that this depended on priorities and who was setting those. The role of ICES in supporting the sustainability of all stocks was noted. That the Tool was not suitable for making definitive decisions was acknowledged. That said, the member felt it could be a useful tool in deciding where to fish.

A further question was raised relating to predicting biomass and recovery responses. Rindorf relayed that the EBFM Tool does not focus at stock level, but rather is based on ecosystem level modelling. A short discussion followed relating to the species interactions, and zero-catch advice for some stocks in the Celtic Sea, and the choices entailed in management decisions.

The discussion concluded with a query concerning future development of the Tool, and how the Advisory Councils could contribute to this, in terms of data and future iterations.. Ann Rindorf noted that much of the data used by SEAwise is publicly available ICES data, which SEAwise is using to forecast future outcomes, with the aim of developing and maintaining this further in the future.

Ní Aodha thanked members for their feedback and comments.

4. EBFM Toolbox Overview

Neil Maginnis explained that the Toolbox was being designed to give a greater insight into each of the regions, and provide a place for the SEAwise research to be collated and explored. The Toolbox, he noted, required some technical knowledge, and was not aimed at the general public. Maginnis noted that the Tool was still under development, and on that basis feedback was very welcome and encouraged.

Maginnis proceeded to provide a demonstration of the Toolbox. Outlining the simplicity of the Toolbox landing page, the speaker invited members to note the navigation bar, home page, about, results and resources tabs. He demonstrated each, alongside the link included also the EBFM Tool. An overview was provided of the various sub-headings including within the Toolbox, alongside an explanation as to how the various regions and subregions of the Tool could be explored, and how the results were displayed within, and could be navigated.

Maginnis noted that currently the data for carbon emissions was not available for the North Western Waters. He outlined the inclusion of fuel usage and cost, and the relationship

between this and the price of fish, outlining that this could be organised by both country and stock, and explored across fleets. Noting these results were historical, he subsequently drew attention to the climate and management tabs within the Toolbox, which allow for an exploration of various scenarios, as previously outlined. The speaker explained that here the user can toggle between fleets to explore impacts.

Stocks, Maginnis outlined, could also be explored in significant detail, including future predictions based on climate change scenarios. An indication of uncertainty was also provided within the Toolbox. Moving onto the ecological consequences tab, Maginnis showed where information was available on benthic state, fishing related marine litter, bycatch risk, and ecosystem depletion risk. An overview was also provided by the speaker of the management strategy and trade-off evaluation allowed for by the Toolbox. That the Toolbox remained in development was reiterated. An overview of the various levels of aggregation allowed for by the Toolbox was demonstrated.

Members were invited to explore the Tool, and provide feedback.

4.1 Discussion

A member noted that the project was drawing to its conclusion, and expressed a keenness that the Advisory Councils would be involved in the final stage of development and future tool uses. The utility of the Toolbox was noted, and it was relayed by a member that the Toolbox was more valuable to the work of the AC and to decision making, relative to the EBFM Tool, which was potentially too simplistic. The importance of an awareness of limitations was noted, and it was relayed that a communication of uncertainty should be included.

Maginnis thanked members for their feedback. The speaker noted that uncertainties were important, and required inclusion, adding that some of the elements do already include an indication of uncertainty. It was taken as an action to explore how these could be made more clear, noting that for some outputs communicating uncertainty was more difficult. In response to this a member suggested reaching out to IFREMER, who worked on a project called MIMI ("Modèles, IMaginaires et Incertitudes"), which addressed the problem of statistical uncertainties, and how to communicate them with managers.

5. Thanks and wrap up

Anna Rindorf thanked members for their feedback, and relayed that SEAwise would follow up with the IFREMER project. Rindorf noted that what came up frequently was the need to include spatial data, and queried whether there were additional parameters to be included. One member noted the importance of including the issue of spatial squeeze with respect to the development of offshore renewable energy.

Following a brief summary discussion, thanks were reiterated and the workshop was closed.

7. Participants

NWWAC Members	
Jose Beltran	OPP-7 BURELA
Emiel Brouckaert	Rederscentrale
Juan Carlos Corras Arias	FREMSS
Noelia Cuervo Álvarez	MAPA–Spain
Eileen Harmey	Seafood Policy and Management Division
Gerlad Hussenot Desenonges	Blue Fish
Manu Kelberine	CRPMEM
Franck Le Barzic	OP COBRENORD
John Lynch	Irish South & East Fish Producers Organisation Ltd
Patrick Murphy	Irish South & West Fish Producers Organisation
Aodh O'Donnell	IFPO
Alexandra Phillippe	EBCD
Corentine Piton	France Pêche Durable et Responsable
Irene Prieto	OPPF4
Dominic Rihan	KFO
Jean-Marie Robert	Pêcheurs de Bretagne PO
Pauline Stephan	CNPMEM
Xavier Tetard	Regional Committee for Maritime Fisheries and Marine Farming of Normandy
Arthur Yon	FROM Nord
Secretariat	
Ilaria Bellomo	NWWAC Secretariat
Mo Mathies	NWWAC Secretariat
SEAwise	
Isabella Bitetto	COISPA Foundation, SEAwise
Jochen Depestele	ILVO, SEAwise
Neil Maginnis	ICES Secretariat, SEAwise

Lia ni Aodha	Mindfully Wired, SEAwise
Anna Rindorf	DTU. SEAwise Coordinator
Marianne Robert	IFREMER, SEAwise
Klaas Sys	ILVO, SEAwise
Morgane Travers-Trolet	IFREMER, SEAwise
Georgia Wells	Mindfully Wired, SEAwise
Benedict Wilson	Mindfully Wired, SEAwise