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Opening session

Juan Ronco Zapatero, Policy Officer, Blue Economy Sectors, Aquaculture and Maritime Spatial Planning, DG MARE, European Commission

SEANSE is an MSP cross-border project. The EASME Agency works with and helps the Commission with the administration of these EU EMFF funded cross-border projects on MSP. SEANSE was created in the context of a transnational initiative to achieve renewable energy targets in the North Sea, as endorsed in the Political Declaration on Energy Cooperation, signed by the countries around the North Sea.

Landlocked countries may also have stakes and a huge interest in renewable energy in the marine space, so, perhaps, they could be associated in terms of MSP because they haven't any MSP Directive issues. It could be interesting in terms of stakeholder positions.

The Commission is currently looking at the draft National Energy and Climate Plans (NECPs) submitted by the EU Member States (MS) in November 2018. These plans outline MS activities for the 2020-30 period and a long-term view up to 2050, indicating how they intend to achieve renewable energy goals. As many countries seek to extensively develop their offshore renewable energies, the SEANSE project doesn't come as a surprise, proves to be spot on and can also play a key role.

It is a project at the right time as, although some infrastructure is already established, massive deployment of offshore wind energy is still to come. The North Sea is the right place and has great potential for offshore wind farms considering winds, depths and the proximity of costs. SEANSE focuses on one issue which is marine renewable energy, in particular offshore wind energy, or in other words, production of clean energy to support the decarbonisation of the economy.

For the Commission, another important feature of SEANSE is that it has political backing: it is embedded in a broader political process. The Commission, DG MARE in particular, has expectations in the Strategic Environmental Assessment (SEA), as it is looked at as a key element when making decisions in the national MSP context. Therefore, the SEA can be "operationalised" for MSP.

As SEANSE builds on the work already carried out in other cross-border MSP projects, including those funded by other EU instruments like INTERREG, it is important that SEANSE demonstrates that there are synergies with other projects relating to MSP (e.g. work on INSPIRE in the context of the MarSP, PLASMAR, NorthSEE projects).

The Commission mentioned that the 2019 Call for Proposals for EMFF funded cross-border projects has been published, but it is not yet open. This year the sea basin under the spotlight is the Mediterranean. For 2018, two projects were selected: one in the Atlantic (SIMAtlantic) and in the Black Sea (MARSPLAN II).

The Commission is also currently busy with studies: one on-going study on the economic impacts on MSP, to be finished by the end of 2019, or early 2020. This economic study is complemented by an "environmental" study. This study is under preparation, with the deadline for the submission of

tenders on 6 June. It is planned to have results during 2020, providing the Member States with examples, guidance, and evidence on how an ecosystem-based approach (EBA) can be applied in MSP.

Even if there is a short time left for EU Member States to set up their MSP plans (deadline 31 March 2021), MSP is a process that will continue after 2021. There are also MSP-related events to come, such as the next meeting of the Member States Expert Group on MSP in Riga on 18-19 November. This event will take place the same week as two other MSP meetings, which will also be held in Riga: the MSP International Forum, 19-21 November (with IOC UNESCO) and the Baltic MSP Forum, 21-22 November 2019.

Leo de Vrees, Project Coordinator, SEANSE project

SEANSE is co-funded by the European Maritime and Fisheries Fund (EMFF). The partners are Marine Scotland, BSH, Danish Maritime Authority, Shom, CPMR and RWS, Coordinator.

After the Paris Climate Agreement, the Netherlands looked at what this means for renewable energy in 2050. A calculation was made, resulting in the need for 200 gigawatts (GW) in the Southern Part of the North Sea in 2050. A model was then made, which is available on the internet (https://iabr.nl/en/projectatelier/atelier2050). The main result is the need for a multiplicity of additional wind farms, cables and connections related to 20,000 turbines.

After that, a Political Declaration, North Seas Energy Cooperation, was signed by 10 countries including Luxemburg and Ireland. Under this Political Declaration, 4 Working Groups were established, one on interconnections led by the UK, one on techniques led by Denmark, one on financial systems led by Germany, and one on MSP and environmental impact led by the Netherlands. Consequently, there is political support, but there was no money attached to it.

SEANSE was drafted in this context as an answer to enable the Working Group to progress. The SEANSE outputs include a Strategic Environmental Assessment comparative study to understand the differences and common practices in SEA in North Sea countries, a data portal demonstrator producing an overview of the available cross-border elements on data and sources (EMODnet, national, …), the definition of a Common Environmental Assessment Framework (CEAF) to identify the impact of wind farms on 4 bird species and 1 marine mammal, and finally case studies in which the methodology is applied. The project runs from February 2018 to January 2020.

The Political Declaration ends on 6 June 2019, but discussions are on-going on new programmes for the next few years. There are still issues to explore such as interconnections between wind farms, arrangements between States, wind farm certifications, etc., so the Political Declaration will probably continue.

MSP implementation process in North Sea

French Minister of the Ecological Transition and Solidarity, General Direction on Infrastructures, Transports and Sea (DGITM/DAM/DML), presentation by Martin Grönwoldt, Assistant Project Manager MSP, Shom

In France the Ministry for Ecological Transition and Solidarity is the national MSP Competent Authority. The national hydrographic office, Shom, gave a presentation on its behalf. It provided an update on the status and schedule of the MSP Directive implementation in France.

France is organised with 4 administrative sea basins:

1. *Manche Est- Mer du Nord* (Channel and North Sea sea basin);
2. *Nord Atlantique – Manche Ouest* (North Atlantic and Western Channel sea basin);
3. *Sud Atlantique* (South Atlantic sea basin);
4. *Méditerranée* (Mediterranean Sea basin).

The MSP Directive is implemented by some Prefets at the level of these sea basins thanks to plans. Indeed, France has finally drawn up a sea basin strategy, in the case of the mainland. It is a bit different for the outermost territories.

Both of the European Commission's Integrated Maritime Policy Framework Directives, on Marine Strategy and on Maritime Spatial Planning, are transposed in France by this National Strategy for the Sea and Coast. This strategy integrates 4 objectives: the ecological transition, the blue economy, the good environmental status and France's influence. The Strategy is adapted for each of the 4 sea basins, leading to integrated documents at sea basin level: the sea basin strategy documents (*Documents Stratégiques de Façades*).

The elaboration of the strategic step is to be achieved in 2019, with the finalisation of parts of the sea basin strategic documents on the initial assessment, the definition of the strategic objectives and maritime spatial planning.

Throughout the process an institutional consultation of stakeholders was organised based on information mechanisms and dialogue through the National Council for the Sea and Coast (*Comité National Mer et Littoral*), the sea basin councils (*Conseils Maritimes de Façades*), dialogue with citizens (National Commission for Public Debate). A public consultation is on-going until 4 June, regarding the first parts of the documents: initial assessment, strategic objectives and objectives.

The next and final phase is operational and consists in the definition of action plan and the monitoring process.

Jesse Verhalle, Belgian Minister of the North Sea, Marine Environment Division of the Federal Public Service

Following a first plan covering the years 2014-2020, a new Marine Spatial Plan for the 2020-2026 period is currently in preparation in Belgium. The European MSP Directive is incorporated in the Marine Protection Act and also the Royal Decree establishing an Advisory Commission representing

all competent authorities in Belgium active in the sea basin (Flemish Region, the federal level and the departments of energy, shipping, etc.).

Initiated in 2017, the process brought together stakeholders including NGOs, businesses and citizens and gathered their proposals. Taking into account their inputs insofar as possible, a first draft Maritime Spatial Plan was made. On the basis of this, a Strategic Environmental Assessment was carried out. After the necessary translation (French and Dutch) of the document and a first approval by the Council of Ministers on 20 April 2018, a public consultation was launched (July to September 2018). Remarks were numerous and partially long. The UK, the Netherlands and France were also consulted.

Based on the input, a revised draft was produced and obtained final approval by the Council of Ministers on 7 December 2018. It is currently submitted for signature by the King and should enter into effect on 20 March 2020.

The content of Belgium's plan has been divided into eight thematic subjects and maps. Representing 0.5% of the total surface of the North Sea, the Belgian area to be managed is bordered by the UK, France and the Netherlands which requires particular attention. The sea is managed at federal level but commercial fisheries, ports and dredging and coastal defence are managed by the Flemish Region as well.

The energy map designates three new zones totalling 285km^2: The Fairybank, as well as the North and South zones (split due to a nature conservation area); the Eastern zone, already allocated in the first MSP, covers 222km^2 with an output of 2.2GW. The new MSP will provide a total output of 4GW by 2030. Other maps show the designated areas for nature, shipping, fisheries and aquaculture, sand extraction, military use and coastal defence, scientific research and cultural heritage.

The new MSP introduces an additional map dedicated to commercial and industrial activities. This thematic subject comes without a fixed definition to allow for future developments in the industry. The fives zones are deliberately situated in conservation areas to accommodate commercial activities compatible with nature conservation.

Discussion:

On coastal defence: a number of approaches can be implemented, like no longer holding a line, managing retreat, bio-engineering – worm, construction of an island… In Belgium, research is needed on this very complex and difficult issue, before approaching the national Flemish level.

On cross-border influence on the plan: most remarks on the Belgium draft MSP came from the Netherlands and were taken into account as much as possible. The UK required further information on the new zone of commercial and industrial activities and requested to be consulted concerning offshore renewables to make sure it will not have an impact on the UK. There were not many remarks made by France.

Regarding a question on the difficulty and success of the SEA and the collaboration with the other countries: there were many suggestions Belgium couldn't follow. Alternatives were studied and developed. Cross-border aspects occurred mainly in the context of bird routes and the impact on

marine life. Plans of France for Dunkirk (France) wind farms site have to be taken into consideration, but Belgium has not much information regarding this.

On stakeholder outreach: stakeholders were contacted through their own website, the newsletter of the Province of West Flanders, the Flemish Institute for Sea Research (newsletter) and direct invitations via email to already existing contacts.

Regarding organisational, legislative and judiciary aspects of the national MSP process in Belgium: the Advisory Commission works exclusively on MSP (similar forums cover other areas) and different legal instruments are applied. The main principals can be found in the Marine Protection Act (a law), an Act drafted in 1999 and updated in 2012 that has to be reviewed every six years.

As a law takes generally longer to be adapted, more procedural elements can be determined by the King; a Royal Decree established the Advisory Commission and is also used for the plan itself. The Royal Decree is binding for everyone and limits (permits for) activities to their designated areas (wind farms, dredging, etc.). The Annex 1 of the Royal Decree is just informative, Annex 2 and 3 are binding for the federal government and contains some strategic choices to keep in mind by the next Minister; Annex 4 is just informative and provides maps.

Regarding the consultation of other States: the MSP guidelines, as well as the Belgian law, makes it an obligation to consult with neighbouring countries. This was undertaken through official/fixed diplomatic channels while giving a heads up beforehand on the technical level.

On zones competition with different activities/sectors: especially Natura 2000 areas and the installation of wind farms, initially no offshore wind farms were planned in conservation areas. The ambitious MSP however required the placement of some OWF in the Natura2000 areas. Studies have been initiated to assess the feasibility and to determine under which conditions it would be possible to place OWF in conservation areas. Stakeholders have been informed that this could potentially result in a negative outcome. Areas had to be identified to facilitate research, otherwise the whole EEZ would need to be considered.

Leo de Vrees, Dutch Ministry of Infrastructure and the Environment

In the Netherlands an intra-governmental Board of Directors on North Sea Affairs representing the different Ministries, with the Ministry Infrastructure & Water Management acting as Coordinator, governs the Integrated Marine Policy. Different Ministries are responsible for activities/sectors: Ministry of Internal Affairs in charge of spatial planning, the Ministry of Economic Affairs & Climate for energy, etc., Rikswaterstaat as an implementing agency of the Government and the SEANSE project coordinator is, amongst others, in charge of licensing activities at sea other than oil, gas and, wind.

The political decision-making process has the goal not of solving conflict but preventing it before it occurs. Dutch MSP is a framework vision, as defined by the Spatial Planning Act, and self-binding for the Government. Therefore, no licenses conflicting with the plan can be granted. No provinces or municipalities are involved as the federal government is the only competent authority beyond 1km offshore which makes the process easier.

A first Policy Plan in 2009 providing a structural vision was dynamically managed and constantly evaluated and had character more of a development plan rather than a comprehensive spatial plan, as exact future trends and needs are unpredictable. At an international level, this planning provided learning experience through acknowledging differences between the countries (for example safety distances for wind parks and shipping routes).

The area covered 1.5 times the size of the Netherlands, (58,000km^2). There are 3,800km of internationally important shipping routes. It includes offshore wind farm areas: 5 operational and 5 in progress as well as 160 oil and gas platforms.

Second Policy Plan from 2016-2021: with a long-term vision and including a Maritime Spatial Plan in compliance with 2014/89/EU. Besides its spatial focus on activities of national importance such as oil & gas, shipping, etc., it also aimed to respond to the growing need for specific wind areas while integrating the MSFD requirements and measures. Only activities of national importance are planned, all other activities follow a transparent assessment framework. There are more detailed plans for specific areas.

A matrix with an overview of arrangements between activities of national interest gives guidance. Compliance with national legislation such as GES, Natura2000 is of greater Importance.

Now: in the process of the 3rd Policy Plan called “North Sea Strategy 2030”, to be ready by December 2021, with a long-term vision up to 2050. New elements included are energy transition, an increase in food production and its consequences and an effective management of Natura 2000 areas. A road map indicates the (planned) development of offshore wind energy.

In 2017 an intense process with stakeholders started. A negotiation table was initiated by NGOs that was then taken over by an independent Chair designated by the Ministry in January 2019 to address the conflicts of the triangle of Energy, Nature and Fisheries. Especially in the context of Brexit, fisheries were problematic. The DGs of 4 Ministries with the Directors of 8 major stakeholders hold a high-level meeting every three weeks to reconcile conflictual interests with the aim to produce an agreement by August-September 2019. If the agreement with stakeholders can be achieved as planned, then an SEA will be started by the end of 2019 with some alternatives. Hopefully a draft plan will be ready by the end of 2020 for final adoption in 2021.

Possible developments for 2030 are yet envisaged. In particular the need to take into account air space is stressed: international uses and military uses.

Discussion:

Regarding taking into account the wake effect: for possible planned wind parks connected to already existing ones, there are discussions in Netherlands on the choice of the technology: build compact or not. It is a cost issue as well having ecological consequences.

Land-sea interactions and smart grids in the North Sea

Mattia Cecchinato, Sustainability and Offshore Analyst, WindEurope

WindEurope is the European Wind Energy Association with 400+ members of the wind industry and its supply chain. As the technology is consolidated and the industry has reached maturity, a growing number of installations shows that wind energy is well established. LSI are very important for the wind industry as it highly depends on ports in which it focuses as the connection between the land and the sea. Furthermore, cost reduction cannot only be achieved by development of technology but requires improvements in logistics and the supply chain which is settling around the ports which need to be appropriately equipped.

The WE Ports Platform gathers a diverse group of ports currently working or planning to work with wind energy (installation, operation and maintenance, floating turbines, …). Ports need to adapt to the increasing demand and technological development by providing the necessary capacities and facilities for storing and maintenance on-site. Furthermore, ports can contribute to a cost reduction and have the potential to reduce the LCOE by 5.3% (directly and indirectly) from 2017 to 2030. This requires an adaption and investments to accommodate higher volumes and new technologies. WindEurope estimates 10%-20% of CAPEX savings from an investment of €0.5-1 bn.

Ports also play an important role in electrification and especially decarbonisation. In the most recent publication of the EC, an output of 400-450 GW of offshore wind in Europe are estimated compared to the current 18.5 GW. The grid also needs to be adapted with a potential to reduce cost through increased efficiency in mind. There is the possibility to develop an offshore smart grid based on hybrid projects interconnecting grids in order to more flexibly redirect electricity to different markets. Challenges are not only of a technological nature, such as HVDV stations that need further development, but also stem from political issues concerning the reactions of the markets and how to prioritise the flux of electricity.

Improved efficiency can also be achieved through aligning regulations, for example when interconnecting countries, co-existence and permitting. Allocating space for wind farms, in the context of the estimated 400-450 GWs, is a major challenge: e.g. the problematic last round of offshore tenders in the UK, local opposition in France, also in relation to the grid.

Discussion:

On the question whether ports remain primarily national or whether they are more internationally oriented: it is stated that, even though their geographical and strategic location determines their reach and/or influence, there is a tendency to have more cross-border activity in the energy sector. Harmonising regulations for health and safety, etc., are crucial as in some cases crews cannot operate in offshore wind farms of other countries due to different requirements and regulations.

In regard to the density of wind turbines and the space requirements: at the offshore event at the end of 2019 a flagship report will be published addressing the question of how and where the space can be found for the 400-450 GW. The matter of density is also currently discussed internally at

WindEurope and contact is established with producers to investigate the future technology to better estimate the possible output per km^2 while avoiding wake effects.

Regarding wind turbine densities: providing the possibility for multiple use, bigger wind turbines can lead to a lesser density while maintaining the output. In the UK passive fishing is already allowed within the wind farms, however, navigation is still often avoided for personal safety reasons. Aquaculture has great potential in these areas. Generally, exclusive usage by wind farms is not very functional. The wider the layout, the easier it is to achieve multiple uses. For example, combinations with other energy sources are desirable, as studies currently investigate possible layouts including wave converters that can also protect the wind turbines against certain weather influences. However, seabed disturbing activities will not be possible because of the cables. Current investigations into the effects in the water column (stratification) complementing those on wake effects and seabed were mentioned.

Regarding floating wind farms: it was pointed out that this technology seems very promising to WindEurope and isn't that far from commercialisation. The absence of a fixed foundation avoids a lot of the piling work and therefore reduces immensely the environmental impact primarily occurring during the installation. The possibility to use zones further from the coast is very interesting as well, as there is usually less competition for the space and therefore less conflict and much lower environmental impact. There are demonstrators and pilot projects of this technology. WindEurope Floaters Task Force exchanges with their ports' platform on the technical specifications and requirements for the floaters and the necessary port infrastructure.

Following a question concerning the anchoring mechanism, different materials were mentioned.

Rhona Fairgrieve, Marine Scotland

Scotland has a high percentage of European wind, wave and tidal resources. Marine planning has been strongly driven by an urge and vision to become (one of) Europe's leading offshore renewable energy suppliers and the consequential need to accommodate the necessary infrastructure, etc.

In Scotland a single national MSP was published in 2015. Current marine planning work focuses on a sectoral plan specifically for offshore wind and for Regional Marine Plans in Shetland and the Clyde area to add further detail to the National Marine Plan. www.gov.scot provides further information.

Land-sea interactions can manifest in many different areas, regimes and routes: As a term featured in the MSP Directive, LSI was a surrogate for the original concept of ICM, which was not acceptable to some EU Member States during the Directive's negotiations. Although, LSI and ICM are very close in nature and relationship, they are not the same. LSI is a very fluid concept and has a different meaning for everyone. However, the just-completed ESPON project considered how LSI could be defined and operationalised, with particular relevance for MSP, and how to best manage them in the context of MSP according to the MSP Directive. See https://www.espon.eu/MSP-LSI for further details on the LSI report.

The NorthSEE project report on the grid has recently been finalised and will be available shortly (a very brief overview of the main findings can be found in the presentation). Marine Scotland stresses that currently the grid and the linear energy infrastructures are nationally focused and disconnected.

In practice the concept of a smart grid is not yet functional. Although, cross-border thinking is getting more common and projects such as NorthSEE and SIMCelt are promoting and encouraging cross-border identification of key issues to be taken into account, the first generations of national marine plans are continuing to focus on national objectives. There is no overarching regulatory regime facilitating the association of offshore grids with offshore renewable projects. The report identifies areas with the least constraint.

LSI will come into play as an enabling mechanism for MSP, especially as spaces in the North Sea become more congested. Changes in technology need to be factored into LSI requirements. This will have implications for the supply chain and where the hinterland, in relation to the coastal zone, starts and stops.

The NorthSEE and BalticLINes projects held their joint Final Conference in Hamburg in February 2019 (http://www.connectingseas.eu/). The different project partners from various countries discussed cross-border consultation for MSP.

The main messages from the workshop on energy include:

- Different national criteria for certain aspects hamper the chance of creating a stronger overall approach;
- Harmonisation, currently only applied in cross-border projects, should be developed and applied more widely;
- Furthermore, there are differences in what operators and developers are requiring compared to the national planning objectives. A better alignment and moderation is needed;
- Closer cooperation on cable and grid planning is required as well;
- The idea of artificial islands makes it necessary to rethink LSI – is it still sea or does it suddenly count as land?
- Social acceptance is also of great importance as opposition on a local level can be fierce;
- Port development, in some regards in conflict with offshore wind farms, can also benefit from the growing need for ports as a coastal interface for wind farms;
- Shipping & Energy has potential opportunities. Shipping is a diverse field; fishing vessels have a conflictual relationship with the cables of the grid. Ports are not only the gateway for the electric infrastructure such as substations, but will have to support the infrastructure for larger vessels for construction, service and decommission of offshore wind farms.

As far as planning is concerned, there are usually two regimes at play: the terrestrial (ports) and the far newer approach of marine planning. Some countries are overcoming this hurdle by extending the terrestrial regime into the maritime area. However, this often proves to be very difficult for land planners with little familiarity with the marine environment and the multi-dimensional character and fluidity of the sea. This requires a major knowledge exchange in order to connect the interactions between sectors and to think about how far beyond the coast and back to the hinterland the supply chain goes to identify where LSI take place. Potential opportunities and synergies are economic, social, cultural, educational, etc. This incorporates and requires joined-up thinking. The absence of ICM in MSPD, as joined-up thinking was a key factor of ICM, is regretted.

Discussion:

With reference to the ambiguity of LSI: it is mentioned that MSP also can be interpreted in many different ways. The implementation of MSP is left entirely to the discretion of the Member States, even though the Commission had been keener for a more defined approach to be taken. It is up to the Member States how LSI is incorporated within their marine planning approaches.

The MSP Directive: is what the Member States wanted. Through this framework there are opportunities for knowledge exchange; the current MSP projects have great opportunities to encourage discussions and to enable policy-makers to think beyond their own localised issues.

MSP is intended to take the EBA to enable the protection of the environment. This becomes difficult as individual countries put into effect marine planning prioritising economic uses. In Scotland, the first National Marine Plan sets out sectoral ambitions, all of which encourage growth.

As the plan matures and the sectors pursue their economic activities, it is becoming evident that there is difficulty in matching them up. Subsequent generations of the plans need to give more credence to the EBA and enable joined-up thinking between activities. This shows that MSP is and needs to remain an on-going process, as the context will also continue to evolve (e.g. climate change).

On interactions between aquaculture and environment: aquaculture can help to regulate the balance of nutrients in the North Sea (generally nutrient-rich, which is problematic) according to the WindEurope representative. In Scotland, there are no multi-species fish farms but salmon in cages cause localised concern about the footprint of the activity, e.g. food and other wastes affecting the bottom underneath them. No salmon farms are located on the east coast of Scotland so as not to interfere with the salmon rivers that are of high economic and environmental value.

Jeroen Van Overloop, Policy Advisor, Maritime Security, DG Shipping

The North Sea Region is busy with thousands of ships traveling or anchoring. Shipping is the oldest LSI as ships have been in use for thousands of years: fishermen literally bring the sea to the plate, goods are transported from land to land via commercial vessels and even offshore infrastructure is first manufactured on land and then brought to sea by a ship.

Many different activities on land are directly linked to offshore activities. For instance, a former factory of GM in Antwerp was synchronised with the schedules of the ships. Antwerp's port, situated 110km inland, provides a lot of hinterland connections due to its "deep" location and simplifies further distribution. Generally, cruise ships bring in tourists that visit the cities (Brussels, Paris…). A traditionally strong shipping industry also affects education, which can also be interpreted as LSI.

Although ships seem to be flexible and capable of moving freely and avoiding other zones, vessels still need to follow specific paths. This is for several reasons: international shipping routes have been established by UNCLOS prohibiting the construction in these areas. These are not only IMO regulated shipping routes, but can also be historical or important shipping routes. A major issue is that these are not always indicated on maps.

Besides physical barriers such as sandbanks, economical aspects are very important. Even smaller detours, if they occur frequently, can generate high additional costs over longer periods of time. The example was given of a company owning 5 ships with an additional coast of €1M per ship and year due to a regular three-hour detour, claiming that the companies will not accept the loss. Following a question on what percentage of overall revenues this number constitutes, it was explained that nowadays the profit margins are often relatively thin. Certain companies, being confronted with extra costs of, for example, €900 daily for fuel due to detours, might refrain from frequenting the port. Legal actions can also become a problem, as the company sued the Belgium government claiming financial compensation. As the blocked route was frequented by 25,000 ships a year, the Belgium government adapted the OWF to give way to the ships.

The only solution to find the routes that are not on the maps is to trace the ships through available AIS data (Automatic Identification System). Vessels send out a signal (information on their position) which is received by the national stations on land but is also available from European Maritime Safety Agency (EMSA).

Shipping therefore needs to be taken into consideration and challenges should be tackled on an international level, as the ships are internationally operated and often cover long distances on routes crossing many different national seas. Designated routes should be registered with the IMO as part of MSP to make them transparent and easily accessible to users. National approaches should be harmonised ("same language as the neighbours"). Furthermore, ports need to be consulted when designating areas for other activities.

Results from the NorthSEE project: The routes in the Netherlands are IMO regulated in contrast to the German ones, that are designated in the MSP but not IMO registered, making them invisible to the ships. Furthermore, AIS data has shown that Germany's existing routes are not practical as ships travel beside them. Coherence with the shipping industry's habits and needs has to be tested.

Transnational cooperation should not only be European but go beyond Europe (90% of vessels are flagged non-European) and seek agreement on the same terminology and criteria.

Discussion:

In some cases, routes were changed: to facilitate the implementation of OWF which was unproblematic as it was properly declared.

On transnational issues of shipping: a historical shipping route linking Oostende (and other ports) in Belgium and Ramsgate (UK) would be blocked by a French offshore wind farm planned in the sea basin strategic documents near Dunkirk. A discussion is currently opened between France and Belgium at diplomatic level.

In case this OWF is built, shipping companies might successfully come out of a lawsuit resulting in annual fees to be paid by France. Furthermore, with an extra 5 nautical miles (approx. €300 more), the detour isn't that long. Protest is not necessarily economically motivated. It is a safety concern, in particular regarding smaller ships which would be obliged to use the main route with a higher traffic density which could lead to accidents currently avoided by using the traditional route. A solution might be to maintain a corridor for these ships, a gap between the sand banks could be considered.

Wim Stubbe, Port of Oostende

Mr Stubbe provided an overview of the port activities before going into more detail regarding international cooperation and projects.

Oostende is relatively small port, which is characterised by a high concentration of citizens and many different coastal functions concentrated in a very small area. Classic activities include cruises and RORO ferries (in addition to standard lorries there is also cargo for the offshore business). Offshore installation, operations and maintenance has become a major activity of the port, fully covering the offshore business.

The first phase of the Belgium wind parks outputs 2.2GW from 400 turbines and assures full-time employment for 900 people. The port is being developed to function as a base for maintenance, representing the core of the business. The plan covers the next 15+ years. In order to be a hub for the offshore industry, training facilities are available.

Bulk and general cargo is another important activity of Oostende's port. Offshore sand and gravel extraction zones featured in the Belgium MSP are accessed through the ports, making them an important link assuring the connection between land and sea (LSI). As waste represents a major challenge, Oostende port focuses on recycling and the circular economy. However, this constitutes a high investment for the size of Oostende port that is trying to find its profile and niche.

MSP is not primarily for environmental protection; it rather represents a tool to organise the different activities taking place in the North Sea (with the goal of a decent organisation of the different functionalities).

Innovation and Development are also a key aspect to ensure a positive future development of the port. The GreenBridge incubator centre which has been in existence for a couple of years now facilitates innovation by helping start-ups in the field of green energy and blue growth. A new ocean basin and towing tank opened recently and provides testing facilities for different activities at sea.

Small companies working on wave and tidal technologies are supported. Besides the on-land research infrastructures, test sites are also available offshore: A "Monopile"/ Blue accelerator test platform including test facilities has been installed enabling companies to carry out tests.

Given the relatively small size, collaboration is crucial to ensure the Oostende's viability. The port is one of 40 members of the cooperation of European offshore wind ports. Furthermore, it is involved in the dual port project aiming at establishing low carbon port management, including sailing cargo. Another low carbon port management project brings together smaller companies developing their own technologies.

One particular project is working on providing hydrogen as a basic fuel system for ships dealing with the question how the supply can be organised in a decent and safe way while taking into account the demands of the ships. The port is also involved in Euroports, a project for small ports dealing yet again with low carbon port management with a particular focus on developing land and sea-based hydrogen fuel stations.

Several other activities and issues have been raised briefly in the presentation such as polluted soil (TBT, etc.) that can become a problem in the case of port expansion or re-organisation.

Discussion:

The world's first hydrogen-electric ferry is now in service in Norway and a presentation given to the workshop participants addresses issues of space on board, energy transmission, etc. Contact has already been established with the port, which, despite its size, plays a leading role in hydrogen powered transportation.

Sarah Holsen, Interreg North Sea Region Programme Representative, Sustainable North Sea Region

Ms Holsen is Project Advisor for the presented priority and green transport and mobility (her area of expertise).
The programme has a budget of €167M to be spent in a 7-year period coming to an end in 2020; almost all funding is allocated. One of the four priorities is the *Sustainable North Sea Region* with a particular focus on climate change mitigation and adaptation. The bulk of projects within that priority deal with marine life, the North Sea and the coastal zone. The region covers 7 countries bordering the North Sea and is a marine-focused programme.

The programme's projects fall under three different areas:

1. Marine Strategy Framework Directive and Marine Spatial Planning. *Jomopants* is developing a framework for a fully operational joint monitoring programme for ambient noise in the North Sea. *Genetic tools for Ecosystem health Assessment in the North Sea region* (GEANS) has the goal to develop cheaper, faster and more accurate DNA-based tools for monitoring benthic organisms that function as an indicator of the health of the marine environment at the sea bottom. *North Sea Wrecks* (NSW) focuses on dangerous wrecks and deals with mines, chemical warfare agents, etc., that can pose a threat to diversifying activities on the sea. The *North See* project, focusing on shipping, energy and environmental protection, is the programme's only project directly dealing with MSP.

2. Coastal areas and zones is the area more broadly connected to LSI. *IMMERSE* deals with and conducts pilots in 7 estuaries in order to address their challenges. *Building with Nature* uses nature-based methods for flood protection and safeguarding against coastal erosion. The *FAIR* project focuses on assisting the maintenance of existing flood protection infrastructures. *BEGIN* and *CATCH* deal with climate adaptation of large and medium-sized cities on or near coasts. In *CATCH* Local Authorities carry out pilots and involve research institutes to create a decision support tool to evaluate climate resistance. Multilevel governance to prevent floods and help communities recover is the subject of *FRAMES*.

3. Blue-green economy, SMEs & innovation. *OESA* (*Ocean Energy Scale-Up Alliance*) develops new services to support accelerated deployment of ocean energy parks. *Inn2POWER* aims at expanding the capacity for innovation and improving access to the offshore wind industry for

small and medium enterprises (SMEs) by connecting offshore wind businesses in the North Sea Region. *PERISCOPE* develops new business models for Blue Growth, partnerships and initiatives in the offshore energy industry. *SalFar* addresses the problem of the increasing degradation of soil due to salinisation near coastal areas by helping agricultures adapt.

The Steering Committee has signalled interest in receiving project applications on MSP issues.

Discussion:

The annual event of the programme is taking place on 25 June with the topic of climate change.

Data sharing at marine basin level for integrating an Ecosystem-Based Approach in MSP

MSP data exchange through INSPIRE in the Channel and North Sea, Ronan Jarno, Shom

The organisation of the data and its sharing, required by the MSP Directive to establish the MSP plans, can also contribute to transboundary cooperation required in addition by the Directive. The INSPIRE Directive provides standards and protocols to exchange spatial datasets and metadata across Europe. The SEANSE project has identified to what extent the data needs for MSP implementation is available in INSPIRE compliant format, in particular available through geoportals in web services.

A data portal demonstrator has been set up. It centralises data available in web services and relevant for maritime spatial planning from multiple sources related to the countries of the North Sea and Channel. It can be easily replicated by other institutions because it is based on open-source software. Several functionalities of the portal encourage and enhance data sharing in the SEANSE project area. For example, improving metadata and data interoperability can be achieved by fulfilling INSPIRE requirements.

Internationalisation is also of great importance because language is one of the first barriers to MSP data sharing between countries. As an example, the SEANSE data portal is translated into English, including the layer names. In addition, data quality can be enhanced using web pages, for instance to help to understand and compare strategic/cumulative environmental assessment indicators. Currently in SEANSE activities, a processing tool is under construction. It aims to compare assessment methodologies.

Finally, many technical solutions support enhancing MSP data and information sharing between countries at the sea basin level. The harvesting process by web services, from the source of reference in the countries, guarantees having access to the most up-to-date data. In order to lead to useful and understandable information, for example common maps, this process requires that the datasets follow the same specifications. In addition, at this stage, the countries have not yet all completed the identification of the best available data to be used to elaborate the plans neither those to be shared, if any, with the neighbouring countries. A number of datasets exist that are theoretically useful for MSP analysis. Thus, the identification work of the fundamental data still remains, which should be shared at transboundary level. Most of all, the development of a European platform sharing MSP spatial data is quite expected from stakeholders.

Discussions:

On the first action to develop in order to facilitate and encourage the spatial data sharing for MSP between the countries: The homogeneity in data should be reached and the quality of the resulting product should be well understood. There are multiple ways to homogenise data. Firstly, raw data can be regularly centralised, and processed, as carried out for example by EMODnet human activities portal.

Secondly, the homogenisation can be carried out when creating datasets. In case of land area, it is what has been executed for years by the countries following the same specifications related to Corine Land Cover framework. It is also what is carried out by EMODnet bathymetry programme where the data is provided by each country and standardised.

Thirdly, data can be created on a limited transboundary area and focused on specific datasets, particularly related to transboundary topics (wind parks, shipping, bathymetry, birds, in the case of North Sea). Finally, EMODNet uses the 3 processes depending of the field community of the information (EMODnet works across 7 communities).

On web platform to share MSP spatial data: a European MSP web platform to share MSP spatial data including a data viewer with a long-term guaranteed service would be useful, like the European MSP web platform, https://www.msp-platform.eu/. This gathers and shares knowledge and information related to MSP but it is not a GIS-like. It is under contract under European Commission funds, but it will continue while portals like SEANSE's will finish after the project is closed. Long-term European supporting web tools are needed. It would be useful for the EU MSP cross-border projects (SIMCelt, SIMNORAT, SEANSE, Pan Baltic Space …) and the stakeholders. It is also needed to stimulate the stakeholders to feed data in such portals.

On INSPIRE: Some projects, like Plusmar are working on similar data issues in particular INSPIRE issues. Also, work has been carried out in the INSPIRE community on an extension of INSPIRE to the MSP field, and there is still a lot to do. Taking part in the INSPIRE project group is a way to improve MSP data sharing.

Thanks to INSPIRE, data exchange has been incredibly extended. Nevertheless, its implementation can be difficult in some cases. The INSPIRE standard is complex and compliant data models can be difficult to produce by the producers. The interpretation of the INSPIRE standard changes depending on the software. Users and stakeholders aspire to a simplifier standard, but interoperability guarantee must not be affected. The approach came from the land and finally is not completely applicable to marine area. Some initiatives are made currently off the Inspire Directive to organise marine data and for example design data catalogues, INSPIRE compatible, as a first step.

On data needs: There is a difference between datasets and planning evidence. In the SEANSE project, the cumulative impacts model of wind farms on birds is tested. The data needs, especially on a transboundary aspect are migrating birds, shipping routes, cables, etc. Some are static and easy, whilst some are more difficult. Details on data need to be defined also. In addition, positions on these choices need to be agreed. Providing the Member States marine spatial plans in INSPIRE compatible format is a challenge that is not so difficult to reach and very useful for the European Commission.

Support of EMODnet to MSP data exchanges, Jan-Bart Calewaert, Head of the EMODnet Secretariat

EMODnet provides access to data and data products across 7 thematic domains located in 7 different data portals. Data combined in EMODnet portals are multidisciplinary (environmental, socio-economic…). Several datasets available on national portals are not available in EMODnet portals but the EMODnet human activities portal provides aggregated and homogeneous data at European level, which is particularly relevant in a transboundary context. Data sources are heterogeneous (research, national, private companies…).

This is a cooperative project; therefore, data quality and exhaustiveness depend on producers' contribution. The EMODnet team are available to provide expertise and experience on setting standards, promoting the fair data sharing principles, sharing knowledge with the partners on setting up interoperable spatial data infrastructure.

The European MSP platform is an information and communication gateway designed to offer support to all EU Member States in their efforts to implement Maritime Spatial Planning. EMODNet is a spatial data infrastructure; it can act as a repository for maritime spatial plans in a harmonised way.

EMODnet gathers a network of more than 150 organisations supporting the EU'S Integrated Maritime Policy via its Marine Knowledge 2020 Strategy. Partners work together to observe the sea, process the data according to international standards and make that information freely available as interoperable data layers and data products.

According to "evaluation of data and knowledge gaps to implement MSP" (https://www.msp-platform.eu/sites/default/files/20170105_data_study_published__0.pdf), the demand for actual data for MSP purposes is often overestimated. What is needed, however, is knowledge about underlying processes, and knowledge to make sound judgements, which indirectly requires data. A second point is that the main data gap for MSP is socio-economic data and socio-cultural information. It is difficult to combine together in a way that is sensible for a marine context. Thirdly, data and information gaps are not really about what is missing but more about how to aggregate, to harmonise and interpret data in order to make sense of the information needed by planners. Challenges for Member States lie in developing second generation plans which require more analytical information and strategic evidence.

In term of Marine Spatial Planning, there is an increasing need to integrate the ecosystem-based approach in the data disciplinary. Furthermore, transnational MSP needs are different to national MSP data needs: scope and level of detail of data is typically much simpler. Pan-European initiatives, like the European Atlas of the Seas and EMODnet data portals and sea basin checkpoints have the potential to support transboundary MSP data exchange needs.

The use of EMODnet human activities is particularly relevant for MSP in a transboundary context. This portal aims to facilitate access to existing marine data on human activity in EU waters, by building a single-entry point for geographic information on 14 different themes. For example, some of the last data implemented in the portal is the EMODnet vessel density map.

Discussions:

On the first action to develop to facilitate and encourage the spatial data sharing for MSP between the countries: The objective is to keep pushing all the stakeholders to enhance data sharing in terms of licence and data format for example. Firstly, data licencing is a gap of data sharing. Secondly, EMODnet ingestion portal is a service available to gather dataset.

On tools for MSP: the "European Atlas of the Seas" gathers 250 data, including all the layers from EMODnet. Users can carry out multiple actions on data: combine, save, export, and embed the data in external tools and websites. EMODnet can provide a spatial data infrastructure to communities. It is also profitable for EMODnet, the atlas can display and use the data for users. It is experimental now; developing this activity requires extra communication tools like web page, tutorials, etc.

On data understanding: Associated metadata is relevant when publishing data. It helps with understanding the data and how the data reflects reality. For example, the data "Vessel Density"

from EMODnet human may underestimate the number of fishing vessels because several fishing vessels don't have AIS.

Rhona Fairgrieve, Marine Scotland, NorthSEE project

Scotland has liaised with neighbouring countries in the development of MSP projects for two sea basins (NorthSEE for the North Sea and SIMCelt for the Celtic Seas within the north Atlantic). Scotland's National Marine Plan was published in 2015 and much of the work with the transboundary MSP projects has enabled Scotland to encourage the neighbouring countries to have their plans compatible with existing data standards, e.g. those originally set by Scotland.

The two sea basin plans and the two transboundary projects related to them, SIMCelt, and NorthSEE, are both looking at elements on data collection, utilisation and what can be done to make it easier.

SIMCelt project (2015-2018) set up a data portal enabling sharing of transboundary MSP knowledge, which is important when considering cross-border issues. Data sharing works quite well currently between Scotland and Northern Ireland through the use of Web Management Services, filtering the information from the services and GIS, but still has to be improved.

Identified challenges in sharing datasets across countries are the differences in scales, in scope, in timescale, in colours, in symbols… It is really challenging to reach agreements as everybody wants to keep what they already know and understand. Additional solutions to improving data exchange, e.g. agreeing on common licences between the partners of the project are identified but still not tested. There is still a lot to be carried out and achieved in the area of data sharing between countries.

The MSP Challenge is a tool to help raise awareness and understanding of MSP. In its digital format, it uses the best data available to create virtual sea basins based on real life areas and to reflect the pressures on those areas from multiple marine activities. It was developed by the Dutch Government and by Breda University in the Netherlands and is aimed at helping to engage MSP stakeholders to plan for real and explain their marine policies.

Two digital versions are created or upgraded in SIMCelt and NorthSEE projects, for the Clyde area and for the Baltic and North Sea areas. For the Clyde area, datasets from multiple different sources were identified related to ports, intensity of shipping, nature of shipping (i.e. ferry routes, cargo vessels, etc.), landward aspects like recreational activities and ecosystem services. Information was sourced from multiple organisations and digitised so that it could be combined with the Ecopath with EcoSIM software, allowing pressures on environmental indicators to be calculated and represented over time. This gives marine planners a more realistic view of the outcome of some of their decisions. In the North Sea edition, information on the prospective sites for wind farms and renewable energy generation is particularly valuable.

As a concept and educational tool, the MSP Challenge can be used to raise definition of Blue Growth objectives, participants' own plans, integration of cultural heritage, and make marine policies explainable to stakeholders and the people and institutes engaged, as well as the wider public.

The NorthSEE project also includes a work package entitled "common legends". It will be completed at the end of June 2019. All its activities lead to the production of a common transboundary map aiming at improving the coherence of the countries' plans.

Finally, despite political uncertainty on what will happen regarding the UK leaving the EU, Scotland will still be keen in continuing to be involved, to work and to learn from the sea basin countries. CEAF for example is an application framework. It will be necessary to define the standards and indicators, to get the numbers to populate the models and then to identify the gaps to be filed. This work has benefits for all the countries involved.

Discussions:

On links between the research community, pilots and educational tools and marine planners: The Marine Scotland GIS contains several hundred data layers incorporating the best-available knowledge from scientific and other academic sources including the Marine Alliance on Science & Technology (MASTS). The GIS, known as National Marine Plan Interactive (NMPi) is available on the Scottish Government's website and is open to the wider public. Close links between the research community and marine planners have enabled pilot projects and educational tools, e.g. MSP Challenge for the Clyde area, to be developed.

On what would be the first action to develop to facilitate and encourage the sharing of spatial data: no progress can be made without an agreement on what objectives are to be achieved and the mechanisms by which it is intended to be done.

Data organisation sharing in the Baltic, Susanne Gustafsson, Senior Analyst in Marine Spatial Planning, SwAM and Pan Baltic Scope project

The European Union Strategy for the Baltic Sea Region (EUSBSR) is the first Macro-Regional Strategy in Europe and has three main objectives: saving the sea, connecting the region and increasing prosperity. Two main organisations act as enablers for this strategy in the region: VASAB works a lot on spatial planning, marine and on land, and HELCOM works a great deal on environmental issues. A joint working group on MSP was founded in 2010 and was later extended by an expert sub-group on data. Challenges in the Baltic are numerous and stem from the uniqueness of the 11 neighbours with their different legislations and various ways of planning (guiding or binding plans). Data is not aligned.

The efforts to overcome the barriers are illustrated by the two projects that were coordinated by SwAM. After Baltic Scope, a first cross-border MSP project in the Baltic Sea running from March 2015 to March 2017, a new project was initiated to build on the recommendations developed by its predecessor: Pan Baltic Scope seeks to fill the gaps and identify new issues with the goal to build lasting mechanisms for cross-border cooperation in order to achieve coherent and matching national MSP in the Baltic Sea region.

When the Baltic Sea Region Data Expert sub-group was constituted in 2015, it was decided to connect the MSP view with the data view by bringing together one data expert and one marine spatial planner of each country. Over time the group's focus shifted from MSP needs to standards and solutions. It has proven to be very helpful, as both working groups are directly involved in the Baltic MSP projects through WP on data sharing in Pan Baltic Scope and Baltic Lines.

Themes to be included in the MSP were derived from the MSP Directive in order to identify useful datasets. The first approach was relatively general and proved too ambitious – too much information, too different formats and missing resources for a too heavy estimated workload. 52 datasets were identified in this effort. Subsequently, it was decided to facilitate the work by concentrating on the output data to be shown with the plans with the aim of having a standard for harmonisation. However, this turned out to be difficult as well.

Nevertheless, certain achievements were possible: A glossary of sea uses provides the standard terms in all the languages of the Baltic regions. BASEMAPS is the web service presenting the data: https://basemaps.helcom.fi/. Poland and Latvia have put sea uses in the portal. Generally, not much data is available so far. When finished, the input as well as output data shall be accessible.

"Baby steps" – the Baltic Scope project approached data sharing pragmatically by compiling already available HELCOM data and concentrating on the lowest common denominator in the Marine "Green Infrastructure" of the Baltic Scope project with few and simple categories: birds, fish and mammals/seals are represented by normalised numeric values according to their distribution. Colours indicate hotspots.

At an early stage experimental maps can be created, even if the represented data is not yet harmonised and has different attributes, in order to get a side-by-side comparison and first overview. Later harmonised maps can be created, as in the case of offshore wind in the Baltic. As the planning process of wind farms varies immensely among countries resulting in a high number of different and often incompatible planning levels, a simple differentiation was adopted: OWF in use were complemented by the category "interest" covering all stages of planning and development until their completion. As good and precise as data might be, planning always goes beyond this and requires direct dialogue allowing for simpler categories to be started with.

In Pan Baltic Scope, the results and challenges of data of its predecessor were addressed to develop better suited solutions. In the attempt to jointly identify essential fish habits, the project tried move beyond the joint presentation of unharmonised data on spawning and nursery areas. Common definitions had to be agreed upon to transform data into planning evidence. Furthermore, the "Green Infrastructure" of the Baltic Scope project is currently in the process of being improved. It was noted that the term is problematic and might complicate things unnecessarily as the EC uses a different term. The next steps include work on the cumulative impact assessment by improving the Baltic Sea impact index (HOLAS II).

Discussions:

On what would be the first action to develop to facilitate/encourage the spatial data sharing: It is advised to keep it simple, starting with the lowest common denominator, e.g. the Netherlands developed a high level storm warning system in the 80s to be sold to other countries which didn't work out as the system proved too complicated to adapt. Instead, the countries gathered and rebuilt a system from scratch, proceeding in small steps, building trust before moving to the next level.

About BASEMAPS: the BASEMAPS tool is developed by the joint working group bringing together the people involved in data issues in both HELCOM and VASAB. As examples of output, different languages are integrated in a common table, and colour codes have also been harmonised.

Concluding words

Juan Ronco Zapatero, Policy Officer, Blue Economy Sectors, Aquaculture and Maritime Spatial Planning, DG Mare, European Commission

Firstly, on the national marine/maritime spatial plans processes: the workshop constituted a good learning experience with informative discussions. Belgium and the Netherlands, two countries that have a year-long experience of a national MSP, shared their history and current state of MSP.

Regarding Land-Sea Interaction (LSI), it appears that this area still requires quite a lot of work, as the term and concept remains a subject of discussion and is interpreted differently among disciplines and countries. However, the ESPON study on LSI (https://www.espon.eu/MSP-LSI) might be the beginning of a common understanding of what LSI is.

The session on data was also very interesting: data and information leads to a better understanding of the marine environment. Nevertheless, there remain problems to be solved. Homogenisation of data, which concerns not only uses or the environment, but also data of the MSP plans themselves. A GIS is only a first step, as it helps determine what there is in the environment and what the uses of it are. Decision Support Systems (DSTs) are then required to make the right decisions.

Creating a "place" to centralise all the different data and information related to MSP plans at European level, as desirable as it seems, constitutes a huge challenge and it is relatively unlikely to happen in the short term.

Leo De Vrees, SEANSE Project

Even if there is a struggle to get coherent data and exchange it, "keeping it simple" through focusing on what is really needed can facilitate the process. The combination of an MSP planner and a data provider working together is a good and interesting approach.

LSI has many dimensions, a focus on crucial elements is necessary especially in the context of MSP. The role of ports cannot be underestimated as they are the main transboundary locations: shipping, cables, wind farms, fishery community.

He stressed the key message: Keep it simple, give examples and get political support at an early stage.

The participants were thanked for their active contribution and CPMR and Shom for organising the workshop.