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Interim Report of the Working Group for Marine Planning and Coastal Zone Management (WGMPCZM)

3–7 April 2017

Barcelona, Spain

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CIEM Conseil International pour l'Exploration de la Mer

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Contents

Executive summary

The Working Group for Marine Planning and Coastal Zone Management (WGMPCZM) met in Barcelona, Spain, on 3–7 April 2017 with 17 members present.

A *review of issues affecting the development of marine spatial plans* included a large number of reports on ICES member countries, EU-initiatives, working groups and conferences. A wide variety of issues are tackled in these, both nationally, internationally and in collaborative projects. To avoid duplication, this work would benefit from mapping and synthesis, as will be focus of a publication during the next cycle.

Cumulative impact assessment methodology was considered by review of new developments and progressed by workshops and publication of outputs arising from work on "bowtie" methodology. A peer review manuscript is being prepared on Bayesian approaches and a workshop planned for 2018 to progress by case studies. A bowtie analysis of the EU Marine Strategy Directive has been completed and a Cooperative Research Report is near completion to publish the output from this. A UNECE workshop was convened in Geestacht, Germany in February 2017 on risks and application of technical standards for assessing UN SDG 14 "Life below water". This will inform a UN-symposium in Reykjavik, Iceland (October 2018).

A revised *training course* on Marine Spatial Planning for the ICES Training Centre is under development, an outline will be presented to the Secretariat in early 2018. The *MSP Challenge game*, an interactive learning tool about MSP, has been applied frequently. The WG reviewed applications and made recommendations on the integration of ecosystem modelling to the game software. A report, reviewing experiences will be drafted in year 2. A proposal for a related ASC 2018 session was made.

A review of *approaches to evaluation and monitoring of marine plans* so far indicates that depending on information availability and type of planning, different types of approaches can be appropriate a) using a formal evaluation framework of objective-related indicators, b) direct comparison of MSP on certain aspects from a governance perspective or c) before and after comparison. The group will review different cases of MSP, asking how benefits of planning can be measured also without stated clear objectives. A proposed structure for a review of approaches was developed.

Continued work on how to *account for culturally significant areas* (CSAs) in marine planning was discussed based on results from a pilot study in 2016, a workshop at the 2nd Baltic MSP Forum in Riga and two workshops (WKCES 2013, WKCCMSP 2016). A new workshop (WKVCSA) will be conducted in Feb. 2018 looking at the vulnerabilities of CSAs to various changes.

Follow-up work from WKCCMSP 2016 (*Co-existence and Synergies in Marine Spatial Planning*) was discussed, noting that focus was most on conflicts and that synergies still need to be explored. A workhop was proposed for Year 2 (WKCSMP, April 2018), co-hosted by EU H2020 research project MUSES (Exploring the opportunities for Multi-Use in European Seas) and Marine Scotland, to understand synergies between marine uses and explore how they can effectively be promoted by MSP.

The group also reviewed recent *developments in MSP data portals*. A first technical study focused on information needs for MSP informs on-going activities, namely compiling a list of external data sources for MSP. The on-going activities include translating data on the ICES Data Portal and ICES Spatial facility to MSP "assessment" data, providing marine planning units and links to external data portals, and a recommendation to the *ICES Data Centre* to create an online marine planning application, allowing spatial filtering of ICES data in these planning units.

To promote a wider exchange on all ToRs, the group proposed an ICES ASC 2018 session: "*Assessing and Analysing Marine Spatial Planning - Knowledge - Indicators – Visions"*

1 Administrative details

Working Group name

Working Group on Marine Planning and Coastal Zone Management (WGMPCZM)

Year of Appointment within current cycle

2017

Reporting year within current cycle (1, 2 or 3)

1

Chair(s)

Matt Gubbins, UK

Andrea Morf, Sweden

Meeting dates

3–7 April 2017

Meeting venue

Barcelona, Spain

2 Terms of Reference

- Assess key issues in the development of marine plans and make recommendations on the role of science to address these. (ToR A).
- Develop cumulative impact assessment techniques for pressures resulting from human activities on the marine environment in the context of marine planning. (ToR B).
- Address marine planning skills and capacity shortages by working with the ICES secretariat to develop and deliver training materials/course as required. Act as scietific steering group for the MSP Challenge serious game (ToR C).
- Review approaches to plan evaluation and monitoring (ToR D).
- Develop approaches to account for culturally significant areas in marine planning (ToR E).
- Coexistence and synergies in MSP: Develop approaches for evaluating benefits (ToR F).
- Work with the ICES data centre to develop for the purposes of marine planning, aspects of the spatial data facility to improve functionality and content (ToR G).

3 Summary of Work plan

Year 1:

- Follow up on activities from WKPASM (reporting, workshop and model development) ToR B;
- A revised MSP training course outline made available to the ICES secretariat ToR C;
- Workshop to develop a vulnerability and risk assessment approach for culturally significant areas ToR E;
- Specification of "marine planning" thematic data portal ToR G;
- A compilation of existing external data sources hosting data for marine planning as potential sources of data feeds ToR G.

Year 2:

- Produce a paper on the role of science in MSP based on experiences of member countries ToR A;
- Run a workshop to identify data needs and approaches to cumulative impact assessments of new sectors/pressures and marine vulnerabilities in marine planning ToR B;
- Produce a manual for applying the vulnerability and risk assessment approach in marine planning ToR B;
- Run a workshop to develop a classification system for coexistence and synergies in MSP and develop approaches for evaluating the benefits of synergies in MSP ToR F;
- A prioritised list of data gaps for MSP with particular reference to international / transboundary data ToR G.

Year 3:

- Produce a review of key issues in marine planning experienced by ICES member countries and lessons learned ToR A;
- Prepare a handbook on Bayesian network and bow tie analysis tools for cumulative effects analysis ToR B;
- Produce a primary paper on meta-models of pressures and their management measures ToR B;
- A review of the experiences gained through the application of the MSP Challenge serious game and related products ToR C;
- Produce a review paper on approaches to plan evaluation and monitoring ToR D;
- A review paper on synergies in marine planning and evaluation of their benefits. ToR F;
- The development of an ICES "marine planning" thematic portal ToR G.

4 List of Outcomes and Achievements of the WG in this delivery period

- A review of MSP status and activity in ICES member countries, together with a round-up of relevant European projects and initiatives that involve aspects of MSP science (Annex 3) This to inform a synthesis of the role of science in MSP processes and outcomes in a publication in the next reporting period.
- Drafting of a manuscript for publication on risk based approaches for marine management: Cormier, R., Stelzenmüller, V., Creed, I.F., Rambo, H., Callies, U. (2017). The science-policy interface in risk based marine management processes: From concepts to practical tools.
- Co-Convened and attended UNECE workshop on UN sustainability goal SDG14 "Life below water" in February 2017, Geestaacht, Germany concerning risks and technical standards for management to be taken up at a symposium in Reykjavik, Iceland, October, 2018.
- Publication of manuscript on culturally significant areas: Kira Gee, Andreas Kannen, Robert Adlam, Cecilia Brooks, Mollie Chapman, Roland Cormier, Christian Fischer, Steve Fletcher, Matt Gubbins, Rachel Shucksmith, Rebecca Shellock (2017) Identifying culturally significant areas for marine spatial planning. Ocean & Coastal Management 136, 139–147.
- In relation to collaboration with the ICES Data Centre to develop the Spatial Data Facility for the purposes of MSP, a recommendation was formulated to the Data Centre to create an online marine planning application in the data facility that will allow the spatial filtering of ICES data in planning units of interest and to also liaise with HELCOM-VASAB.
- Proposals for two analysis and synthesis workshops in early 2018 (Annex 4): *Workshop on Vulnerabilities and Risks to Culturally Significant Areas* (WKVCSA2018), chaired by Andreas Kannen, Germany, and Kira Gee, Germany, in Geesthacht, Germany, 29 January – 2 February 2018. *Workshop on Co-existence and Synergies in Marine Spatial Planning* (WKCSMP2018), chaired by Kira Gee, Germany, and Eirik Mikkelsen, Norway, in Edinburgh, Scotland, 4 – 6 April 2018.
- Proposals for two sessions at the ICES ASC 2018 to reach out and to promote scientific and expert discussion on marine and coastal spatial planning with on-going and achieved work beyond the working group (Annex 5): a) *Assessing and Analysing Marine Spatial Planning - Knowledge - Indicators – Visions* and b) *Making Marine Management Interactive and Creative - Testing The Tools*.

5 Progress report on ToRs and workplan

A) Assess key issues in the development of marine plans and make recommendations on the role of science to address these

Under ToR A, WGMPCZM received numerous reports from member countries and European projects on the status of MSP process, issues and the use of science in informing

processes and outcomes. These reports are compiled below and will form the basis of a review of activity and synthesis of the role of science, for publication in the next reporting period. Updates were received from EU member states experts group, North Sea region and the EU/IOC MSP conference. Eight countries reported updates on MSP status for their waters (Netherlands, Sweden, England & Wales, Scotland, Norway, Germany, Spain and Belgium). Reports from 5 European projects were also received (EU MSP platform, BaltSpace, BalticLines, BalticScope, NorthSEE) and reports from two further projects can be found under ToR F report (AQUASPACE and MUSES).

These reports demonstrate that there are a wide variety of issues being tackled both nationally, internationally and through collaborative projects that would benefit from synthesis and mapping ot to help avoid future duplication. Work is underway towards a publication on this in the next reporting cycle of the working group.

Progress against Workplan

This ToR is on track against the workplan and a synthesis document will be prepared in year 2. A draft resolution may be required for this as a publication following discussion at the 2018 meeting.

B) Develop Cumulative Impact Assessment Techniques for Pressures Resulting from Human Activities on the Marine Environment in the Context of Marine Planning

This ToR was addressed in a joint session with the Working Group on Marine Renewable Energy (WGMRE) and in Year 1 by a review of recent developments in methodology for bowtie analysis and planning for future development of the methodology. In addition presentations were received from WG members working on cumulative impact assessment in national projects or international initiatives. Presentations were received from Rob Gerits (Netherlands) on a project to develop a common approach to CEA for wind energy developments in the North Sea and Jemma-Anne Lonsdale (UK) on the approach being adopted to support the OSPAR Quality Status Review (QSR) and Intermediate Assessment (IA 2017) (a regional sea application of the common indicators for Marine Strategy Framework Directive, MSFD). Robert Aps (Estonia) also presented the approach adopted by the Plan4Blue project in the Gulf of Finland to apply HELCOM pressure Indices and environmental sensitivity maps to calculate environmental risk matrices and maps.

Bowtie Analysis and Bayesian Approaches to Cumulative Effects Assessment

Based on a series of workshops (WKRASM, WKPASM, WKBNC), a qualitative Bowtie diagram and Bayesian Belief Network model of the system of management measures was developed to predict residual total pressures in support of a cumulative effects assessment. This approach integrates effectiveness and compliance of measures implementation in the calculations of residual pressures resulting from combined human activities. The output of these models is then used as inputs for ecosystem models in the assessment of cumulative effects and impacts.

Output: Paper is in the final drafting stages of being submitted to a primary journal for publication.

Cormier, R., Stelzenmüller, V., Creed, I.F., Rambo, H., Callies, U. (2017). The science-policy interface in risk based marine management processes: From concepts to practical tools. (Final draft).

Action Item (completed): Members of the working group were asked to consider using the Bowtie analysis and Bayesian models in a case study approach as a means to test and refine the model and data needs. Support in the use the both approach will be provided by the co-chairs of the workshop WKBNC.

Bowtie Analysis of EU Legislation

Based on a recommendation from WKRASM, a Bowtie analysis of the EU Marine Strategy Framework Directive was completed to elaborate a detailed Bowtie analysis of existing EU legislation and policies relevant to regional seas implantation of the programmes of measures.

Output: A cooperative research report is the final drafting stages and will be submitted to ICES for review and publication.

Cormier, R., *et al*. (2017). Bowtie analysis of the of the EU Marine Strategy Framework Directive program of measures. ICES Cooperative Research Report (Drafting).

Action Item (completed): Roland Cormier will be providing informal training sessions in the use of the Bowtie analysis to members of the working group.

UNECE Sustainable Development Goals and Regulatory Standards

The United Nations Economic Commission for Europe (UNECE) is currently pursuing an intiative to examine the use of technical standard to assist member countries to achieve the UN Sustainable Development Goals (SDG). Goal 14 "Life Below Water" was selected by UNECE to initiate this process as it covers a broad range of environmental, cultural, social and economic risks that could be effectively and efficiently managed by technical standards. Specifically, Goal 14 is to conserve and sustainably use the oceans, seas and marine resources. The recommendations from a UNECE workshop held in February 2017 are being considered for a Symposium on "Management tools and standards in support of Sustainable Development Goal 14" will be held in October 2018, in Reykjavik, Iceland. The report of this preparatory workshop is being finalized and will be available including the presentation at https://www.unece.org/index.php?id=45297#/ .

Action Item (completed): A one pager will be circulated to workgroup members as a briefing of the symposium objectives and format to canvass the members as to potential topics and themes for the symposium.

Progress against Workplan

This ToR is on track against the workplan. In Year 1 further development from WKPASM has progressed with a peer reviewed paper and CRR nearing completion following the Year 1 meeting. A Draft Resolution has not yet been drafted for the planned workshop in Year 2, further work is required to ensure appropriate case studies with supporting data are available to drive ahead method development.

C) Address Marine Planning Skills and Capacity Shortages by Working with the ICES Secretariat to Develop and Deliver Training Materials/Course as Required. Act as the Scientific Steering Group for the MSP Challenge Serious Game

ToR C consists of two (to some degree interrelated components:

1) Follow-Up of and support for the MSP Challenge set of games;

2) Development of a proposal for an ICES training course on MSP following up from TCMSP2014.

Education and Training on MSP a.o. with the use of the MSP Challenge.Info

The training and education on ecosystem based MSP using the www.mspchallenge.info has significantly evolved over the course of 2016 and early 2017. Three EU funded projects use the MSPchallenge as part of their stakeholder involvement. NHTV Breda university of applied science supports NorthSEE, BalticLines and SIMCelt. The existing short sea shipping board game was developed further by the Scottish Coastal Forum and partners in SIMCelt. A third edition was made late 2016 and was used for the kick-off of the Belgium MSP revision with some 130 stakeholders, as well as being played at the 2nd International Conference on Marine/Maritime Spatial Planning organised by UNSECO-IOC and the European Commission in Paris in March 2017. The WGMPCZM concludes the gaming and communication around it has created a lot of interest and positive feedback.

The board game has been played at numerous events, and the development of the computer supported MSP 2050 challenge has progressed. Teaming up with the International Ecopath Initiative a comprehensive foodweb will be made available for the North Sea, including five distinct pressures from human activities. Throughout 2017 this will be thoroughly tested, with partners in Ecopath and Erasmus Mundi MSP students. Jeroen Steenbeek from Ecopath and Xander Keijser from the Dutch government will make available the documentation for review by the WGMPCZM members.

Discussion on the take up of a functional and representative foodweb as part of the MSP-challenge and the board game resulted in the following recommendations:

On foodweb modelling and integrating with human activity simulation:

1) be transparent on both the cause-and-effect relations and the computing mechanisms;

2) help players understand the disclaimers – simulation does not replace human decision making;

3) set the scene to players on what the issue in the gameplay is to resolve, as to enhance the uptake on the information provided;

4) make all underlaying assumptions and computing mechanisms an integral part of the mspchallenge software.

On game-based learning and use of the mspchallenge games four different purposes were identified:

1) awareness raising and community building;

2) training and education;

3) collecting data and information by setting up scientific experiments;

4) use it as development and prototyping it as a possible tool to support decision making in MSP.

Further discussion in the WGMPCZM leads to the following proposals regarding the use of the MSPChallenge:

1) check possibilities to play the board game with a core group of people in ICES (a.o. the secretariat, ACOM and SICOM) in a specifically organised 1-day event;

2) take a proposal for a session at the ICES Annual Science Conference in September 2018 in Hamburg combining gaming (minimum four hours timeslot) and discussion (90 minutes timeslot). (This proposal was made but not accepted).

Development of an Outline for an ICES Training Course on MSP

WGMPCZM discussed a proposal of Roland Cormier and Andreas Kannen (instructors in TCMSP2014) on how to develop the approach of TCMSP2014 further. Based on the experience from 2014, specific attention needs to be paid to properly defining the target audience, e.g. scientists and planners come to such a course with different types of knowledge and therefore also different expectations on what to learn. Both groups need a different approach (or course organisation even if the course content may not differ significantly). A particular course should therefore address just one of these groups (either scientist or planners/process managers) instead of mixing them.

The discussion resulted in the following next steps:

- Target audience should be (young) scientists, which are not experienced in managment of regulatory and planning processes. From the perspective of WGMPCZM, this seems to fit best with the strengths of ICES as a scientific organisation. Therefore, the course will be adapted to this specific audience.
- The course will not be designed to teach specific technical methods, but rather to teach scientists in what MSP is, how it is organised and what issues it aims to solve and how, what the role of different actors (including scientists) is within MSP processes and not the least discuss the role of scientific information within MSP processes.
- The course will make use of MSP Challenge Board Game with learning objectives targeted to audience related course objectives; Courses instructors will also report back to the MSP Challenge team their experiences from using the game as a teaching tool.
- Andreas Kannen and Roland Cormier will provide a course outline for a course in 2018 to the ICES secretariat for approval by ITG by the end of 2017.

Progress against Workplan

ToR C is on track with the workplan. A training course outline will be provided to ICES secretariat in year 1 following discussion with ICES training. In Year 2 the WG will receive reviews of the use of the MSP challenge game and lessons learned.

D) Review Approaches to Plan Evaluation and Monitoring

One could distinguish three different perspectives from which the success of MSP can be assessed. First, the assessment of effectiveness of MSP can be conducted with an evaluation framework (e.g. MESMA framework) where SMART objectives (specific, measurable, assignable, realistic, time-related) and associated indicators are used to measure the degree of success in achieving planning objectives (Stelzenmüller *et al.* 2013). Worldwide MSP has been implemented using however, different planning approaches and operating in various governance frameworks (Collie *et al.* 2013; Buhl-Mortensen *et al.* 2017). Those reviews revealed that only a minority of MSP initiatives have been built around clear visions, goals and planning objectives. Therefore, a formal indicator based evaluation of MSP success would only be meaningful for those cases where clear MSP objectives have been stated. The second perspective on evaluating the success of MSP or ocean planning is to compare the MSP processes directly regardless of the individual goals and objectives. Criteria for such an evaluation would be for instance: level of transparency of the process, level of stakeholder engagement, public consolidation process, who has the mandate for planning, was the land-sea connection accounted for, was the planning process based on best available science, where there sufficient data etc. (see e.g. MASPNOSE project; www.wur.nl/en/show/Maspnose-Maritime-spatial-planning-in-the-North-Sea.htm). The third angle would be to recognize that MSP was and is not always following the good practice as described in the UNESCO MSP handbook, therefore, the evaluation of the benefits of MSP could rather follow a before and after planning comparison. One would expect that cause-effect pathways have been altered by planning due to reduction of risk by regulating activities or the introduction of new activities or measures. Consequently, all of those evaluation techniques bring up the same question: How can the direct and indirect benefits of different planning processes be measured, even when no SMART objectives have been defined?

Based on this question, a review on MSP efficiency evaluation techniques will be produced. In order to describe the methods and approaches used to measure success, common frameworks such as the MESMA framework, the MASPNOSE framework, the BalticScope Evaluation criteria or Canadian evaluation frameworks of the Commission for the Environment will be investigated. Further, new approaches and sets of variables will be reviewed, aiming to identify best evaluation and monitoring practices. Doing so, specific challenges need to be considered: While efficient MSP should integrate environmental indicators, it needs to be kept simple and transparent. Efficiency assessments need to focus on the management process and outcomes, but initial settings such as the integration of stakeholders or the assessment of transboundary effects need to be regarded.

Further, ToR D will refer to selected case studies, which already conducted a full evaluation (Mecklenburg Vorpommern, Germany) or are about to do so (e.g. Scotland). Synthesized will be those variables, which have been conceived as being of high importantance.

A more detailed outline of such an assessment is forthcoming.

Progress against Workplan

Progress is according to the plan. No changes to the ToR are proposed. A proposed structure for a review of approaches was developed and will be worked on by Year 2.

References

Buhl-Mortensen L, *et al.* 2017. Maritime ecosystem-based management in practice: Lessons learned from the application of a generic spatial planning framework in Europe. Marine Policy **75**:174-186.

Collie JS, Vic Adamowicz WL, Beck MW, Craig B, Essington TE, Fluharty D, Rice J, Sanchirico JN. 2013. Marine spatial planning in practice. Estuarine, Coastal and Shelf Science **117**:1-11.

Stelzenmüller V, *et al.* 2013. Monitoring and evaluation of spatially managed areas: A generic framework for implementation of ecosystem based marine management and its application. Marine Policy **37**:149-164.

E) Develop Approaches to Account for Culturally Significant Areas in Marine Planning

The work of WKCES (ICES CM 2013/SSGHIE:12) has served as a starting point for developing a comprehensive body of work related to socio-cultural values and how they can be accounted for in MSP. WKCES analysed concepts of socio-cultural value in some detail and developed a method to identify and spatialize such values. Its main achievement was to develop the concept of "culturally significant areas", a framework modelled on the idea of "ecologically and biologically significant areas". The CSA approach was subsequently further refined and presented in a scientific paper (Gee *et al.*, 2017).

Following on from this work, a pilot study designed to identify and map culturally significant areas was carried out in Sweden in 2016 (Author: Christian Fischer, HZG). The study was able to elicit a range of socio-cultural values in the case study area, but also highlighted difficulties in mapping socio-cultural values, pointing to potential difficulties with specifically delineating CSAs in practice. Further work is needed to explore this aspect in more detail.

In November 2016, an ICES-sponsored workshop on CSAs took place at the 2nd Baltic MSP Forum in Riga. This allowed the concept to be presented to practitioners and yielded valuable feedback and practical suggestions. In order to progress this line of work, a workshop is now being planned for January 2018 (WKVCSA) to tackle the issue of vulnerability of CSAs and how specific risks to CSAs can properly be accounted for as part of the MSP process (see resolution in Annex 4).

In parallel to the above, a workshop took place to analyse conflicts in MSP (WKCCMSP 2016), drawing on case study examples from various countries and MSP contexts. Coexistence was used as an overarching term to describe interactions in marine space, with conflicts describing incompatible situations and synergies situations of mutual enhancement. Skilful management of the planning process was identified as a key to dealing with conflicts, which requires understanding of the context of the conflict (e.g. situational constraints), the actors involved and the various mandates and support systems for the process manager. The workshop concluded that good process management makes an important contribution to reducing risks in MSP and enhancing the quality of the MSP process and its outcomes.

WKCCMSP2016 was instrumental in pointing to the difference between *substance- and process-based conflicts*. This is important for how our work on CSAs and will now be taken forward with respect to vulnerability and risk assessment of CSAs. As a first step, a workshop and a CRR are proposed to outline the combined results of the earlier WKCES and a coming workshop (WKVCSA 2018) in the form of a handbook for practitioners.

In addition to WKVCSA looking at the vulnerabilities of CSAs (and their constituting values) to various developments and changes, another workshop is aimed at – but not yet finally decided and not to be scheduled before 2019 – in order to look at process-based risks and the consequences of not taking CSAs into account in a way that satisfies the regulatory perspective (WKMCSA, mechanisms to account for CSA), decision/resolution to be made at WGMPCZM 2018 after some more preparatory research. The two workshops are understood as closely interrelated, although WKMCSA will also have broader implications for the MSP process as a whole.

Progress against Workplan

Work is progressing according to the plan. The workshop WKVCSA proposed for Year 1 (vulnerability and risk assessment approach) will take place in February 2018. A DR has been drafted to request this and integrate an earlier reporting with the WK report (Annex 4). The possibility for a follow-up workshop on mechanisms to account for CSAs in MSP processes was discussed and will be reconsidered in Year 2. In that case, the manual proposed in Year 2 needs to be changed to Year 3. This will be item of discussion at the 2018 WGMPCZM meeting.

References/Outputs

Gee K, Kannen A, Adlam R, Brooks C, Chapman M, Cormier R, Fischer C, Fletcher S, Gubbins M, Shucksmith R, Shellock R. 2017. Identifying culturally significant areas for marine spatial planning. *Ocean & Coastal Management*. 136: 139-147.

F) Coexistence and Synergies in MSP: Develop Approaches for Evaluating Benefits

The work on ToR f was introduced with a presentation by Eirik Mikkelsen that summed up what was done and came out of WKCCMSP2016, and how that related to ToR F, and what could be done under this ToR. Presentations by Antje Gimpel on Aquaspace (Making space for aquaculture; http://www.aquaspace-h2020.eu/) and Andronikos Kafas on the MUSES H2020 project (Multi-use in European Seas; https://muses-project.eu/) showed ways for analyzing co-existence and upcoming work on multi-use and synergies that were relevant for the ToR.

AQUASPACE

AquaSpace aims to deliver the science base to identify the potential for aquaculture to expand in Europe and to support the corresponding licensing process in a broader spatial planning context. The respective spatial planning context can comprise inland, coastal, or offshore areas depending on the designated location of the aquaculture activity.

In a broader and more holistic management approach such as Integrated Coastal Zone Management (ICZM) or Marine Spatial Planning (MSP), human activities are regulated in space and time to satisfy specific management objectives. In order to allow for a spatial representation of costs and benefits of a proposed aquaculture activity at a specific location in a multi-use context, the AquaSpace tool has been developed. Here, costs relate to conflicts in between human activities, a risk based evaluation of combined environmental effects of the planned activity and the additional pressure contributions of a new aquaculture activity to the overall human pressures in a management area. Benefits relate to

socio-economic assessments spatial synergy potential, the added value of an activity, food security or expected revenues.

Such a transparent visualisation technique facilitates (i) an effective implementation of MSP for aquaculture, enabled by using spatially explicit methods and tools, (ii) the implementation of a spatially explicit (GIS-based) multi-use context, addressing the functionality for cumulative risk assessments and conflict analysis, and (iii) the implementation of an Ecosystem Approach to Aquaculture (EAA), explicitly considering economic and market issues. The latter allows for more informed, evidence-based decisions on proposed aquaculture developments and the associated risks and opportunities. Ultimately, this integrated approach would support the licensing process and facilitate investments.

The MUSES Project

The Multi-Use in European Seas (MUSES) project is a Horizon 2020 funded project that is exploring the opportunities for Multi-Use in European Seas across five EU sea basins (Baltic Sea, North Sea, Mediterranean Sea, Black Sea and Eastern Atlantic).

There are increasing demands on ocean resources as well as increasing pressure on the use of ocean space, as a result ocean space is a valuable asset deserving our special attention. Challenges may arise from tensions between maritime activities demanding marine space, and combining compatible activities in the same marine space can serve to share and reduce costs, and generate further synergies between those activities.

MUSES builds on existing knowledge to explore the real opportunities for Multi-Use in European Seas, including the scope for innovation and Blue Growth potential and to present practical solutions on how to overcome existing barriers and minimize risks associated with Multi-Use development.

MUSES is a two year project co-ordinated by Marine Scotland that commenced on November 2016 and will conclude on October 2018. There are ten project partners from across Europe with a mix of consultancies, academia and government bodies that provide both a wide geographical coverage and broad depth of knowledge/expertise, with strong links to stakeholder groups.

Project Objectives:

- Explore the opportunities for Multi-Use in European Seas, including the scope for innovation and Blue Growth potential
- Present practical solutions on how to overcome existing barriers and minimize risks associated with Multi-Use development whilst maximising local benefits
- Provide an understanding of environmental, spatial, economic & societal benefits of co-location
- Highlight inappropriate regulatory, operational, environmental, H&S, societal and legal aspects.

More information here - https://muses-project.eu/

The discussion on this ToR concluded with a proposal for a workshop (WKCSMP), which will aim to:

a) Improve on ways to classify and understand coexistence and synergies in marine use;

b) Provide advice on how coexistence and synergies can be furthered in a MSP process.

This is proposed for 2018 and will be chaired Kira Gee (Germany) and Eirik Mikkelson, Norway. A Draft Resolution was prepared and submitted to ICES, following consideration by the MUSES project concerning the possibility for a combined event (see Annex 4).

Progress against Workplan

Progress with this ToR is on track. During Year 1 the proposed workshop Co-existence and Synergies in Marine Spatial Planning has been planned and a Draft Resolution submitted (WKCSMP 2018). We propose a combined CRR including also the results from WKCCMSP 2016 in an overall synthesis report.

G) Work with the ICES Data Centre to Develop, for the Purposes of Marine Planning, Aspects of the Spatial Data Facility to Improve Functionality and Content

During 2014 and 2015 meetings, WGMPCZM reviewed the spatial data requirements for marine planning and integrated coastal zone management (MSP/ICZM). The review resulted in a table categorisation of spatial data types relevant to the MSP/ICZM process. Data categories include 'raw' georeferenced data category (physical and biological types); human use category, and assessment (derived products) category (see Annex 4 in ICES WGMPCZM Interim Report 2014, ICES CM 2014/ SSGHIE:06).

During 2016 meeting, WGMPCZM reviewed the ICES data holdings, including the ICES Data Portal and the ICES Spatial facility. The review resulted in recommendations to the ICES data centre team to improve the accessibility and utility of existing data holdings for marine planning applications (see ToR E, Section 5, ICES WGMPCZM Report 2016, ICES CM 2016/SSGEPI:05). In 2016, WGMPCZM proposed a programme of activities to develop ICES spatial data holdings in relation to the needs for data to support MSP/ ICZM process in ICES countries and meet international data requirements for MSP/ ICZM (see ToR G, WGMPCZM ToR 2017-19).

WGMPCZM has planned to work with the ICES data centre to develop, for the purposes of marine planning, aspects of the spatial data facility to improve functionality and content. This includes:

1) Specification of a "marine planning" application (story map) in the ICES spatial facility.

2) A compilation of existing external data sources hosting data for marine planning as potential sources of data feeds.

3) A prioritised list of data gaps for MSP with particular reference to international / transboundary data.

4) The development of an ICES "marine planning" application in the ICES spatial facility.

"Marine Planning" Application Specification

During 2017 meeting, WGMPCZM reviewed recent developments in relation to MSP data portals. A major development included the European Maritime Spatial Planning platform, an interactive information gateway to a diverse array of knowledge and resources drawn from existing MSP processes and projects. One of the EU MSP Platform's activities includes technical studies focusing on topics that enhance MSP implementation and contribute to collective knowledge base. The first technical study focused on "Data and Information needs for MSP". It was completed and published in December 2016. The study identified main data, information and knowledge issues at different stages (and scale) of MSP implementation, as well as provided a comprehensive overview of information and data held in existing databases, including products and marine information services that support MSP decision making process. The material from this study, can directly inform the activities planned under ToR G, namely compiling a list of existing external data sources hosting data for marine planning as potential sources of data feeds.

Following presentation and discussion, WGMPCZM developed a series of proposed tasks that specify the "marine planning" application to be hosted on the ICES spatial facility.

Task 1: WGMPCZM to translate 'raw' georeferenced data hosted on the ICES Data Portal and ICES Spatial facility to MSP "assessment" data by explaining the analysis and assessment requirements, specifying potential outputs (e.g. units, resolution and scale etc.), as well as assist with the interpretation, description, and potential use of the layers in MSP. Groupings of the data (a.k.a. themes) may build on the table categorisation of spatial data types and data categories as identified by WGMPCZM in the past.

Task 2: WGMPCZM to provide the ICES data centre with a compilation of the relevant marine planning units and relavant links to external data portals for the 20 ICES countries. This may include jurisdictional boundaries, such as Exclusive Economic Zones, planning/administrative areas, etc. The task will utilise materials produced by ongoing European projects e.g. NorthSEE and BalticLines projects for the North Sea (Belgium, Denmark, France, Germany, Ireland, the Netherlands, Norway, and United Kingdom) and Baltic Sea (Estonia, Finland, Latvia, Lithuania, Poland, Russian Federation, and Sweden) regions respectively. The ICES network and established platforms (e.g. EU MSP Platform) will be used to compile information for the remaining counties (Portugal, Spain, Iceland, Canada, and United States of America).

Task 3: The ICES data centre to create an online marine planning application in the ICES data facility that will allow the spatial filtering of ICES data in planning units of interest. Besides ICES datasets, links to external data sources (e.g. links to national data portals) will need to be returned in the filtered results. Similar activities are currently undertaken by the HELCOM-VASAB MSP Data Working Group and it is recommended that liaison between the ICES data centre and HELCOM-VASAB should be made prior to developments taking place. WGMPCZM can facilitate these discussions.

Progress against Workplan

Progress with this ToR is on track. A recommendation to the ICES Data Centre on task 3 is proposed (see recommendations).

6 Revisions to the work plan and justification

We suggest two minor amendments clarifying reporting on consecutive related workshops in the form of combined reports to promote efficiency and synthesis.

Year 1

ToR E)

- Workshop to develop a vulnerability and risk assessment approach for culturally significant areas (*reporting by CRR synthesising results from WKCES 2013 and WKVCSA 2018)*

Year 2

ToR F)

- Run a workshop to develop a classification system for coexistence and synergies in MSP and develop approaches for evaluating the benefits of synergies in MSP (*reporting by CRR synthesising results from WKCCMSP 2016 and WKCSMP 2018)*

7 Next meetings

The next meeting of WGMPCZM is proposed for 23–27 April 2018 at ICES HQ, Copenhagen, Denmark.

Annex 1: List of participants

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Annex 2: Recommendations

RECOMMENDATION	ADRESSED TO
1. WGMPCZM recommends the ICES Data Centre to create an online marine planning application in the ICES data facility that will allow the spatial filtering of ICES data in planning units of interest. Besides ICES datasets, links to external data sources (e.g. links to national data portals) should be returned in filtered results. Similar activities are currently undertaken by the HELCOM-VASAB MSP Data Working Group. Liaison between the ICES data centre and HELCOM-VASAB should be mesade prior to developments taking place (relation to: ToR G).	ICES Data Centre
2. WGMPCZM proposes a theme session for the ICES ASC 2018: *Assessing and Analysing Marine Spatial Planning - Knowledge - Indicators – Visions*. This session aims to open up perspectives on MSP and ICM from a critical systems perspective, asking how MSP is conceived, what knowledge it draws on, and how progress and success in MSP could be measured and assessed. A key focus of the session will be on indicators with respect to these issues, including both natural and social science rationales, and looking at existing approaches as well as gaps. The session also invites contributions reflecting on MSP at a meta-level, considering the nature of MSP and where (and how) it needs to be broadened in order to manage our seas in a long-term sustainable way. Submitted, see Annex 5. Relation to: ToRs A, B, D, E, F.	SCICOM
3. WGMPCZM proposes a theme session for the ICES ASC 2018: *Making Marine Management Interactive and Creative - Testing The Tools*. The session will focus on tools and methods to create the type of cross-disciplinary and cross-sector discussions needed for integrative marine and coastal management and for raising societal awareness on marine issues. We propose an innovative session format, with various "live" testing rounds spread throughout the day/conference. The intention is to demonstrate different methods of involvement and participation, including the MSP Challenge game (ToR C), digital modelling and visualisation tools, participatory mapping methods and hands-on decision support tools. Submitted, see Annex 5.	SCICOM

Annex 3: Updates received from countries and projects working on MSP

Under ToR A) WGMPCZM received numerous reports from member countries and European projects on the status of MSP process, issues and the use of science in informing processes and outcomes. These reports are compiled below and will form the basis of a review of activity and synthesis of the role of science, for publication in the next reporting period. Updates were received from EU member states experts group, North Sea region and the EU/IOC MSP conference. Eight countries reported updates on MSP status for their waters (Netherlands, Sweden, England & Wales, Scotland, Norway, Germany, Spain and Belgium). Reports from 5 European projects were also received (EU MSP platform, BaltSpace, BalticLines, BalticScope, NorthSEE) and reports from two further projects can be found under ToR F report (AQUASPACE and MUSES).

EU Member States Experts Group on Maritime Spatial Planning (Andronikos Kafas)

11th meeting (2-3 March 2017, Hamburg, Germany)

The Directorate General for Maritime Affairs and Fisheries of the European Commission (DG MARE) has set up the EU Member States Experts Group on Maritime Spatial Planning (MSEG MSP). The group comprises of MSP expert representatives from coastal Member States and its aim is to provide advice to the European Commission on all aspects of MSP. The 11th meeting was the first under the new chair Mr Haitze Siemers (Head of Unit Maritime Innovation, Marine Knowledge and Investment) and the first meeting in 2017. During the meeting, the group agreed a workplan for 2017 and considered priority areas for 2018-2021. It is understood that the MSEG Work Plan for 2017 includes Ecosystem based Approach (EBM) to MSP, Land Sea Interactions, Blue Growth study (incl. Sea basin visions, Analysing current and future spatial needs, Developing indicators), and addressing MSP in International contexts. Future priorities for 2018-2021 include cross-border implementation of MSP and cooperation across different countries, monitoring and reviewing plans, cross-sector integration (i.e. Multi Use), innovative stakeholder participation, preservation of traditional local communities, Strategic Environmental Assessments, Integrating climate change in MSP, Science in MSP & Research and planning evidence for MSP, and Fisheries in MSP.

North Sea Region (Rob Gerits)

North Seas energy ministers have signed up for a political declaration on cooperation (on a voluntary base) in developing of offshore renewable energy (mainly wind farms) on the North sea and the Irish sea. One of the working areas in the elaboration of the declaration is MSP. Within this working area a task is formulated to develop a Common environmental impact assessment framework for cumulative impacts of the renewable energy development. This framework must by ready for use in 2019 and be applicable on the project level, national strategic level and for international cooperation. Important aspects of the framework are data management and adaptive management (including dealing with uncertainties and knowledge gaps).

The Netherlands will have the lead in the development of this framework, but will do this in close cooperation with France, Belgium, Germany, Denmark, Norway, Scotland/UK and Ireland.

2nd International Conference on Marine Spatial Planning (Andronikos Kafas)

15–17 March 2017, Paris, France

DG MARE and IOC UNESCO IOC have jointly organising the 2nd International Conference on Marine/Maritime Spatial Planning in March 2017 in Paris to discuss on how to achieve and accelerate successful MSP worldwide. As a result of the conference, a joint roadmap to accelerate Maritime/Marine Spatial Planning processes worldwide (MSP) has been adopted. In the interest of both organisations to move forward the global agenda on the oceans - in particular promoting maritime spatial planning at global level - this joint Roadmap defines priority areas and strategic objectives for mutual cooperation. It will contribute to sketching out a vision and a role for MSP in implementing Agenda 2030.

Besides the common membership between WGMPCZM and MSEG MSP, MSEG's work-plan and priority areas and the Joint Roadmap assist WGMPCZM with setting the scene and identifying the key issues arising in the development of marine plans across the ICES area (ToR a).

COUNRTY UPDATES

Netherlands (Lodewijk Abspoel)

Maritime Spatial Plan for 2016–2021 published end 2015, including measures for Marine Strategy.

Cumulative impacts of human uses (in particular related to more offshore wind development) is the key priority area for science in the coming years. The cumulative impact model for ecosystem pressures developed for offshore wind in 2014 is not strong enough according to the independent board overseeing SEAs and EIAs. The Dutch Government will need to work with other North Sea countries on this further, establishing the "left over" carrying capacity of the ecosystem for further development and comparing it to Good Environmental Status of the North Sea Basin.

Implementing of N2000/MSFD measures are related to this. Management plans for the Doggerbank, Frisian Front and Brown Ridge will be developed over the next three years, after the formal adoption of these areas as part of the Dutch N2000 network of MPAs.

By spring 2018 a Dutch strategy for the North Sea in 2030 will be agreed, including a road map for offshore wind offering the marine and maritime industries a blue economic development perspective. This will include a chapter for investments and a long term perspective for fisheries - as well as more restoration of marine environment (in particular biodiversity).

Sweden (Andrea Morf & Joacim Johannesson)

MSP Status and important steps in Sweden

In 2014 and 2015 new MSP-legislation was adopted by the Parliament (Environmental Code amendment) and the Government (MSP-Ordinance). According to this legislation the Swedish Agency for Marine and Water Management (SwAM) is responsible for developing national marine spatial plans covering the area one nautical mile from the base-

line seawards (incl. the major part of the territorial waters and the exclusive economic zone, EEZ). The plans shall be adopted by the Government. In parallel, the municipalities (local councils) are responsible for spatial planning of the territorial waters (since 1987). Hence, there is an overlap between the national MSP and the municipality comprehensive planning. The marine spatial plans shall the municipality planning as well as licensing in the marine area.

Important steps:

- SwAM and the County Administrative Boards (CAB) were assigned by the Government to prepare for implementation of national MSP in Sweden (2012)
- Basic data mapping (2012-2013)
- Current status report presented in (2014) with final version, after consultation (2015).
- MSP-legislation; Environmental Code (2014), MSP Government Ordinance (2015) providing mandate to SwAM and other government institutions incl. County Administrative Boards (CABs)
- Sector interest mapping with national authorities and cross-sector conflict & synergy analysis. Mostly national authorities were invited, including CABs, plus representatives from county councils and municipalities. A large stakeholder consultation meeting was held in April 2016.
- Adoption of an MSP Roadmap (SwAM) supporting and guiding the process towards the plan proposals to be submitted to the government. The aim is to submit plan proposals by the end of 2019. The roadmap includes planning goals and strategies as well as a description of the different steps to be taken in the process. It also contains the scoping report of the strategic environmental assessment. The roadmap is directed at those involved in the MSP-process as well as anyone interested in the planning of the Swedish territorial sea or maritime zones. The MSP roadmap is largely based on a proposal for a guiding document that was out for a broad consultation from September 2015 to March 2016. The proposal was part of the back-ground information in the Espoo-consultation that was initiated in the autumn 2015.
- Dec 1, 2016, publication of early draft MSP-proposals for all national MSP-areas (Bothnian Bay, Baltic Sea, Kattegat and Skagerrak) with environmental impact assessments (within SEA-processes). Broad dialogue with trade organisations m NGOs, central government agencies, regional structures, municipalities and academia. Dec 2016-April 2017. Also dialogue with neighbouring countries. Sustainability appraisal is carried out for one plan (testing methodology).

Next steps:

- Publication of first round proposals for plan proposals with environmental impact assessments (Feb 2018). Broad 6-months public consultation.
- Publication of second round plan proposals with environmental impact assessments (2018/19). Broad 3 months (prel) public consultation.
- Final plan proposals submitted to the Government (Dec 2019)

Transnational dialogue

Transnational dialogue is well under way (recurrently since 2013), through specific meetings organised by SwAM, but also by a number of transboundary EU-financed projects,

not the least the Baltic Scope project with Sweden as lead to develop transnational collaboration in the Baltic Sea. Other projects are e.g. BalticLines and NorthSEE. The formal ESPOO-process was initiated in the autumn 2016.

Role of Science for MSP in Sweden

A needs-oriented approach is applied for science; researchers are contacted and contracted as need arise, complemented by consultancy. The role of science has so far been to – been self-mobilised and on call – provide planning authorities with knowledge for producing planning evidence, analysing the process or review and feedback on documents presented to the larger public or on request for specific issues (also MSFD implementation and SDG related). Within the Baltic Scope project through Nordregio (see Lessons learned report http://www.balticscope.eu/content/uploads/2015/07/BalticScope_LL_WWW.pdf) also process feedback on the transboundary part. Academia is also part of the dialogue and the formal consultation processes. In spring 2017, a consultation meeting was held with the partner universities within the Swedish Institute for the Marine Environment.

Symphony

Symphony, a tool for assessing cumulative environmental impact of different plan alternatives has been further tested by SwAM. A large number of maps showing ecosystem components and pressures have been collated by governmental agencies, consultants and universities. The sensitivity matrixes included in the model are based on 36 experts from 15 institutions. For the development and use of the tool Chalmers University of Technology, NIVA Denmark, NOAA, University of California and Western Washington University have provided scientific advice.

For the on-going process important issues for science and knowledge are:

- Basic data such as: most important fish habits, impacts on bats impacted by offshore wind, economic value of ecosystem services.
- Future trends: marine renewable energy technology, drone ships require & MSP, how deal with CC/Climate refugia.
- How to build and conduct a robust participatory planning process at appropriate scale and level
- How to deal with politics, impact assessments of marine spatial plans considering the strategic level of the plans, system of criteria are most fitted for prioritizing between uses.
- Political science aspects such as: requirements on institutional setup for cross-border coordination of planning, limits of the law of the sea and other present institutional features.

England & Wales (Jemma Lonsdale)

The English marine area was split into six areas with five split into the inshore and offshore resulting in eleven marine areas in total. There is one Welsh marine plan to cover the Welsh marine area. The East Marine Plan for England was adopted in 2014. The South Marine Plan's consultation finished January 2017 and the marine plan is currently being amended prior to being adopted by the Secretary of State, expected summer 2017. All other English Maine Plans are due to be completed by 2021. The Welsh Marine Plan

also closed its consultation in January 2017 and is also in the process of being updated. The Marine Management Organisation (MMO) for England is learning from previous plans by improving its stakeholder consultation. It was highlighted that it was important to note there were two kinds of evidence: empirical and anecdotal which needs to be accounted for. To assist, both the MMO and Welsh Government (for Wales) have an online geographical information system. Neither plans take a spatial zoning approach, the online geographical systems provide the data for the location of the current activities and some designated areas such as aggregate extraction areas and Round 3 offshore wind farms. Both marine plans are based on evidence by having an evidence review being conducted by multi-disciplinary scientists to inform the plans prior to drafting. Both England and Wales are considered to embody the ecosystem approach so 'science' is interpreted in its broadest sense to include environmental, social and economic knowledge, understanding and evidence. The biggest gaps identified by the author are understanding how the regulators communicate with other jurisdictions in transboundary effects and in understanding how climate change can impact sectors and what could/should be done. Importantly is ensuring scientists and policy/ decision makers speak to each other to ensure scientists understand what is needed as demonstrated by the Welsh Evidence Plan which had to use the language provide in the Future of Well Beings Act.

Scotland (Matt Gubbins)

Following the establishment of the national marine plan (NMP) in March 2015, Scotland has been rolling out the development of Regional Marine planning and is entering a phase of review for national planning.

The National Marine Plan sets the framework for all marine decision making in Scotland's Seas and provides a framework for more detailed regional marine planning. Under the Marine (Scotland) Act 2010, a review of the NMP is required in 2018 (within 3 years of implementation. To prepare for this review, Marine Scotland is assessing the level of uptake of the NMP in marine licensing and planning, monitoring progress against the NMP policies and objectives as well as starting reviews of the NMP against for example ecosystem services frameworks and the ICES Quality Management System (adopting it as the structure for an evaluation framework).

Regional marine planning has started with the formation of the first regional Marine Planning Partnerships (MPPs) in the Clyde and Shetland. These (very different) marine regions received Direction from Scottish Ministers in 2016 and 2017 and have 3 years to formulate regional plans out to 12 NM. Both regions are in the position of completing initial assessments of the state of their marine regions (environmental, physical, ecological, social, economic) with the aim of identifying issues and knowledge gaps. These initial assessments have been reviewed and next steps are for MPPs to draft initial versions of regional Marine Plans (RMPs) for review and approval by Scottish Ministers. A further 9 marine regions will be rolled out on an annual basis and develop RMPs in the coming years.

Science (data, evidence, knowledge, advice and research) have been extensively used throughout the Scottish marine planning process. The NMP was based on the evidence base presented in Scotland's Marine Atlas and made available on NMP interactive (NMPi), Scotland marine planning portal where several hundred spatial data layers are

available for download and use. Much of these data were drawn upon in the development of regional marine plan assessments for Shetland and Clyde Scottish Marine Regions. There is an ongoing need for evidence collection, particularly in the areas of identifying environmental sensitivities, understanding usage of space by inshore fisheries (small boats) and identifying constraints to development. More fundamental research is being conducted collaboratively in international projects, including MUSES, SIMCELT, NorthSEE, AQUASPACE and ATLAS all referred to elsewhere in this report.

Norway (Eirik Mikkelsen)

For large-scale marine planning, Norway has three integrated management plans covering the whole of its EEZ. The Barents Sea plan first approved in 2006, revised in 2011 and updated in 2015. The Norwegian Sea plan was approved in 2009, and the North Sea plan in 2013. The 2015 update of the Barents Sea plan included an adjustment of the delimitation of the marginal ice zone, moving it further north than previous. In 2017 the government announced a petroleum exploration license round including for the northern Barents Sea, in part based on the Barents Sea plan update. Both the Barents Sea plan update and the exploration license round led to controversy.

In Coastal zone planning, it is the municipalities which are the main planning authorities, but with national sector authorities and some others in important roles. Aquaculture industry development and expansion has been the main driver for coastal zone planning in Norway. Currently about 160 of 270 coastal municipalities have aquaculture production. There is some degree of mismatch of scale between planning authority, stakeholder activities, and potential impacts of activities.

A number of **intermunicipal coastal zone planning initiatives** have come up. Through these different levels of policy and planning coordination are possible. As of October 2016 there were 9 different intermunicipal CZP initiatives, in 6 counties, and involving 65 municipalities. According to Kvalvik and Robertsen (2017) none of these have led to a joint plan, but there have to a high degree been coordination of process and development of common tools and standards, and some degree of coordinated content.

The government and parliament has worked on a new **zone based system for salmon aquaculture production management** that will be in operation from 2018. Aquaculture production expansion has been limited several places in Norway due to high salmon lice numbers in fish farms. Now there will be 12 production zones and fallow zones ("firebreaks") for Norway, to limit the risk of disease and parasite spread. The zones are determined based on hydrographic models of possible spread of parasites (salmon lice). Depending on salmon lice numbers in the different zones the producers in the zone can experience growth/hold/reductions. It is only indicators on salmon lice that are decided upon. The challenges with controlling salmon lice, escapees and also limitations of areas for aquaculture have led to efforts to develop **offshore salmon aquaculture**. Currently (April 2017) two development licences are granted (production licenses) for offshore aquaculture. One locality is ready, and the farm is under construction. Planned start with fish is third quarter of 2017. It will be a pen with the capacity of 8 standard salmon licenses, allowing a maximum biomass in the pen at any one time ("MTB") of 6240 tons. It will be 110 m diameter and 68 m tall. The other concept is granted the equivalent of 10 standard production licenses for salmon (7800 tons MTB). It will be like a ship, of length

430 meter. Its locality is currently contested (2017/03), linked to bird conservation issues. Both localities are rather close to shore, and not far offshore for testing.

Kvalvik, I. and R. Robertsen (2017). "Inter-municipal coastal zone planning and designation of areas for aquaculture in Norway: A tool for better and more coordinated planning?" Ocean & Coastal Management **142**: 61-70.

Germany (Antje Gimpel)

At the Länder level, Lower Saxony and Mecklenburg-Vorpommern have updated their regional development programmes including their plans for territorial waters. Effectively, this represents the first revision of state marine spatial plans, giving Germany its first experience in second generation marine planning. Both plans have been updated to include recent developments. In Mecklenburg-Vorpommern, the main innovation is the inclusion of reservation areas for fishery; these are areas where the needs of fishery must be given particular consideration in any decision-making. Both plans were revised and published after a lengthy statutory consultation process involving a broad range of stakeholders. The state plan for Schleswig-Holstein is also about to be revised.

The Federal Maritime and Hydrographic Agency of Germany (BSH) are currently preparing for the first revision of the marine plans for the North Sea and Baltic Sea. The intention to revise the plans will likely be announced in 2018, including plans for public and stakeholder participation. Sectoral workshops may take place subsequently. The tentative timetable is to finalise the revision of the plan in 2020.

Spain (Rafael Sarda)

Spain has recently published the Royal Decree 363/2017 of April 8th that creates an instrument for maritime spatial planning in the country and accomplished the transposition of the Directive 2014/89/EC of the European Parliament and of the Council of July 23th 2014. The main objective of the Royal Decree is the promotion of the growth of maritime economies through the development and sustainable use of marine spaces and marine resources by ensuring their good environmental status.

This Royal Decree will create five different maritime management plans for the maritime space and it will determine the most suitable marine areas for each use following the Directive. The Royal Decree is under the recently developed National Law on the Marine Protection Act (Act 41/2010 of December 29th) that transposed the Marine Strategy Framework Directive (2008/56/EC). Under this scheme, marine spatial planning plans should be consistent with the environmental objectives of the marine strategies through the application of an ecosystem approach. Spain considered appropriate to link both planning processes to ensure the sustainability of the Spain's marine environment and because the Marine Protection Act itself already contemplated marine spatial planning as one of the possible measures to achieve good environmental status.

The maritime management plans will be elaborated with the participation of the different competent Ministries and the different Autonomous Communities of Spain under the authority of the Ministry of Agriculture and Fisheries, Food and the Environment. A Marine Management Plan will be developed for the five marine regions contemplated into the Marine Protection Act: North Atlantic, South Atlantic, Strait and Alboran, Levantine-Balearic and Canary Islands.

This Royal Decree has been developed thanks to the collaboration of a working group established for this purpose within the Interministerial Commission on Marine Strategies, in which representatives of the Departments of Development have participated in addition to the Ministry; Defending; Energy, Tourism and Digital Agenda; Economy, Industry and Competitiveness; Foreign Affairs and Cooperation; Treasury and Public Function; Education, Culture and Sport; and the Cabinet of the Presidency of the Government.

Belgium (Lodewijk Abspoel)

Belgium is progressing on two ongoing MSP related processes. One concerns the short-term review covering the period 2020–2026, for which a kick-off event was recently organised to inform stakeholders and authorities on the main features of the process. The event was attended by some 130 people and attracted media attention (NL contributed with the map challenge board game). Interested parties have been invited to submit proposals for review by 30 April 2017, after which the formal consultation process will begin.

The second process focuses on the long-term vision for MSP plans (2050) and is open to stakeholders including the private sector and relevant public authorities. In parallel, Belgium is focusing on themes such as multiple uses of space, environmental implications and Blue economy. Related outputs should be ready around autumn 2017 and feed into the long-term vision of the MSP plans. This should feed into the MSP review process for 2026.

State secretary Phillip de Backer responsible for the North Sea is stressing the need for scientific underpinning of the marine planning and vision setting, both for the spatial allocation and blue growth.

PROJECT UPDATES

EU MSP Platform (Kira Gee)

The EU MSP platform is an active information gateway designed to provide planners and stakeholders with a wide range of MSP knowledge and information (see ppt for a complete overview). Drawing on existing processes and projects, the website contains e.g. country information on MSP, sea-basin information on MSP, a broad database with specific MSP "practices", an overview of MSP projects, an overview of funding opportunities and news and updates. The platform team also provides dedicated services such as a question and answer service, technical studies to fill specific information gaps, as well as organising thematic workshops linked to the work of the EU MSEG. The platform is managed by a central office in Berlin, with supporting offices and experts in each sea basin. Currently, the platform contains 291 MSP practices, 98 project descriptions and 25 funding opportunities. The databases are continuously updated; there is a particular invitation to the scientific community to pro-actively submit lessons and practices to the platform. The science/practice interface is likely to be a topic for one of the 2018 MSEG meetings and possibly an EU-wide workshop will be organised on the topic.

Baltic Sea experiences (Andrea Morf)

Status of MSP in the Baltic Sea: MSP under way and interactive knowledge & method development intensifying

In the Baltic Sea area, recent developments include a considerable number of different types of projects, to a large extent building on each other, but also becoming increasingly concrete and policy focused, as national-level MSP is being institutionalised and concretised. Today, most countries around the Baltic Sea have adopted legislation for national level MSP and an appointed authority. Different countries have appointed different authorities as responsible to conduct planning (both ministries and national authorities or even regional governments FI, also with varying focus responsibility: environmental, maritime, finance, and more.). For status in April 2017, see fig below. Germany is already into a second round of MSP with regional plans (Bundesländer) and about to start its 2nd round nationally, where Finland and the region of Åland are just about to start. Moreover, there is in some countries (such as Sweden) and overlap between national and lower level governments with regard to the responsibilities for MSP. MSP has differing meanings and implications in different countries (is not binding everywhere), legislation also specifies more or less what needs to be included in a marine spatial plan. These differences are important to know, but not necessarily a insurmountable obstacle to transboundary collaboration and coordination – as the Baltic Scope project proves.

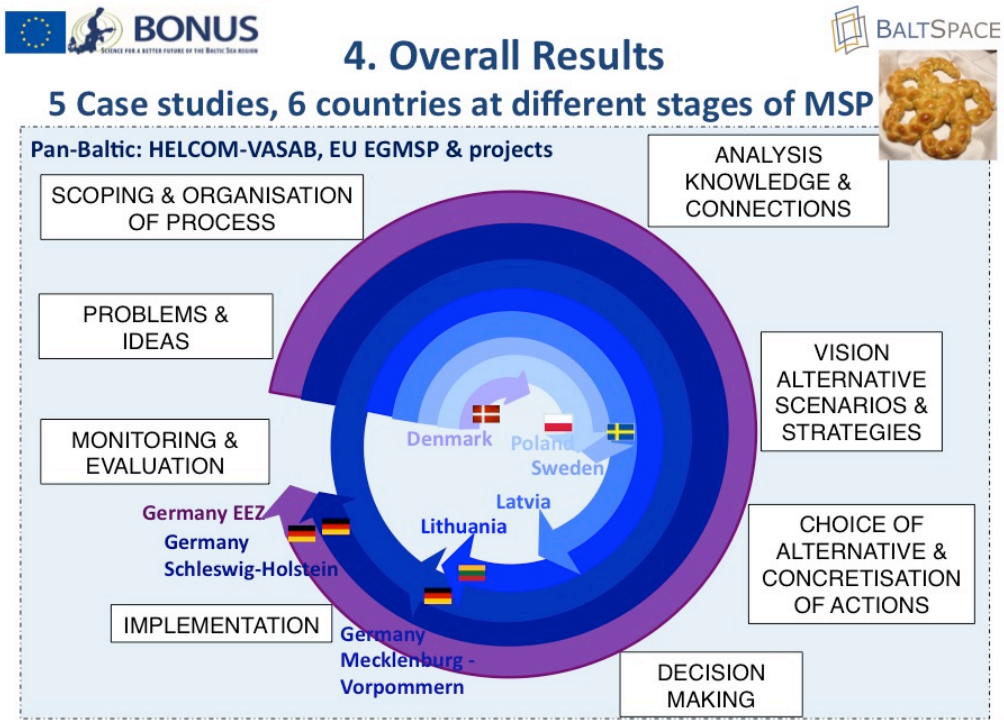

Figure: Planning status in different Baltic Sea countries (BaltSpace presentation AM).

With regard to the interaction between science and policy and the role of science in the policy making process around MSP, there has been a trend from basic research to understand what is happening in the Baltic Sea (BACC) to research and development projects

based on policy-defined needs of knowledge and method development (BaltSpace, Go4Blue and more) financed by the BONUS research initiative) and further beyond to development projects supported by research organisations (Baltic LInes, Baltic SCOPE). Earlier, INTERREG-financed projects provided early analyses and syntheses of intstitutional systems and knowledge needs and tests for method development and test planning with an increasing involvement of responsible authorities (from BaltCoast to BaltSEaPlan to PartiSEAPate (to promote knowledge generation and transnational collaboration) and finally Baltic SCOPE – financed by DG mare to actually implement policy and promote transboundary collaboration to produce better aligned national marine spatial plans). Below, two of the projects are described in their important features a bit more into detail, including a specification of the role of science.

Thus, projects have been important for the development of MSP in the Baltic Sea area, but now the more permanent institutional system and its actors are increasingly in the driving seat – and science/scientists is invited to participate (if they don't complicate things but deliver what is requested). An important forum for interaction are, however, not only projects, but also an existing forum for transboundary collaboration, that is likely to receive more tasks and play an increasingly important role as integrative forum (if the recommendations of the Baltic Scope project are implemented): the HELCOM-VASAB working group on MSP and its data subgroup. We have tried to invite one of the chairs of the group to the meeting.

Baltic Scope: a clear example of *trans-scientific* development and research (D & R, mode 3), financed by the EU to promote MSP policy implementation - just concluded 2- year project with many reports relevant for the different ToRs of the group (http://www.balticscope.eu/)

The Baltic SCOPE project (2015-17) and co-funded by the European Union (Directorate-General for Maritime Affairs and Fisheries (DG MARE)), has been a response to needs for cross-border coordination on marine uses and environment in the Baltic Sea area and to the EU Directive on MSP, which emphasizes the need for greater cross-border integration and coordination of MSP activities in Europe's seas. It built on previous MSP research and development projects in the Baltic Sea region and has been one of the first transnational projects on MSP, where responsible national authorities, supported by regional collaborations and research organisations, collaborated to develop practical MSP with a transboundary perspective. The purpose was to increase coordination and promote collaboration between national authorities and other key MSP stakeholders, with the aim of finding common approaches to solve transboundary issues and enhance the alignment of national Maritime spatial plans in the Baltic Sea region. Concrete planning work was organised in two case study areas focusing on the EEZ and territorial waters in the Southwest Baltic (DK, DE, PL, SE) and Central Baltic area (EE, LV, SE) resulting in better mutual understanding, a more PanBaltic perspective on needs for process development and planning evidence in MSP, concretely synthesised a number of knowledge syntheses and maps plus case study reports (see Giacometti *et al.* 2017 and Urtane *et al.* 2017) and a recommendations report from the overall project.

The role of Science and individual scientists (science organisations SYKE and Nordregio) was rather broad ranging within two extremes of more research and more supporting: a) more advisory and supporting functions such as co-facilitation of meetings, note taking and writing of interim-assessment reports, and in the end supporting report writing as

editors (Nordregio see Giacometti *et al.* 2017 and Urtane *et al.* 2017); b) research oriented functions such as observing the process of transboundary collaboration on MSP and institutional interaction and learning on individual to group level (through observation, interviews, focus groups, synthesised in Nordregio's Lessons Learned report Kull *et al.* 2017) and analysing the possibilities to develop a framework for monitoring and evaluation of transboundary MSP (SYKE's evaluation framework report Vajropouro *et al.* 2017). An important part of science-policy interactive work has also been to "hold a mirror in front of the planners" and facilitate project internal reflection during the course of the 2-year project before sharing the lessons learned beyond the project at the 2nd Baltic Sea MSP Forum in Riga, Nov. 2016. This double function and the shifting between roles of individual scientists has been rather challenging, as the roles of the research organisations changed during the process from the "fly on the wall" to rather actively involved facilitators and editors of reports.

Several organisations participating in the project (partially project partners) are also represented in the WG (SYKE, MIG, University of Tartu) and one group member is wearing two hats (the Nordregio one).

Balt Space: an inter/transdisciplinary 3-year project (spring 2015-18, https://www.baltspace.eu/baltspace-research) and rather typical example of a research and development project (R & D mode 2). Here, 8 independent partner research organisations from DE, DK, LT, PL, SE work on important knowledge gaps identified by policy makers and try to develop solutions to the problems identified – in close interaction with potential end users of the project.

Financer is BONUS – a collaboration between the EU and national research funding organisations with focus on improving governance of the sensitive marine environment of the Baltic Sea.

Focus are different 4 types of integration challenges: policy/sector, transboundary (land, vertical, international), stakeholder, and knowledge. These had been (among other issues) defined as important knowledge gaps by the policy world and included in the BONUS call. Integration is commonly understood as a key mechanism in Maritime Spatial Planning (MSP) but the precise meaning of integration has rarely been elaborated, nor have its implications for different MSP processes been fully explored. Achieving integration in MSP across all these various dimensions is no easy feat. This is not helped by the fact that there is little information on the constraints and benefits of successful integration. Using mainly social sciences methods (interviews, document analysis, observation) the project wants to explore them in a first step (analysing passed and on-going planning processes in different countries of the southern Baltic) and draw conclusions on what are the important challenges and enablers for different situations, countries are. This analysis is almost concluded. Case study reports have been written for 5 cases: Sound, Germany, Poland, Lithauania & Latvia, Overall Baltic (VASAB-HELCOM MSP WG). The present and coming reports most relevant for the different ToRs regard MSP tool development (WP 1 Evaluation framework – coming, WP 2 final theme reports on integration challenges from case studies are under way and published soon (complementary to the national authority perspective of Baltic Scope) and WP3 with tool testing which will be reported by spring 2018 (Bow Tie analysis and spatial cost benefit analysis and more). Lastly WP 4 communication is relevant, including the development of Dialogue Forums and communication tools. Several organisations participating in the project are also rep-

resented in the WG (HZG, SIME, MIG) and provide continuous contact. The WG is also seen as a forum for scientific communication on the project.

North SEE (Andronikos Kafas)

The North Sea contains unique nature conservation interests and it is one of the busiest areas in the world for shipping and offshore energy production (oil, gas, wind, wave and tidal). To balance the often competing interests of different users in the context of environmental protection, Maritime Spatial Planning (MSP) promotes sustainable development of the sea. It is important that all the countries around a particular sea area work together to achieve this. For the North Sea, the countries surrounding it are forerunners when it comes to MSP. Most of them have already developed their own.

Plans using their own methods and processes but sharing approaches and methods between countries can be a valuable way to improve and share best practice. The NorthSEE project, which runs until December 2018, aims to encourage coordination between MSP authorities in the North Sea Region (NSR). The project is made up of Work Packages (WP), which will improve coordination across three specific areas – environment, shipping routes and energy infrastructure. All findings and recommendations will be published, which will inform national MSP processes to ensure ongoing transnational MSP dialogue beyond the project's lifetime.

Objectives

The objectives of NorthSEE are to:

1) Develop a multi-level MSP coordination framework across the North Sea Region (NSR);

2) Develop an 'information and planning' platform to share evidence for MSP;

3) Increase stakeholders' participation in transnational MSP;

4) Ensure transnational coherence in:

- Environmental protection approaches and objectives in MSP (WP 3)
- Shipping routes (WP 4)
- Offshore energy infrastructure in NSR (WP 5)

More information here - http://www.northsearegion.eu/northsee

Annex 4: Resolutions for workshops

A **Workshop on Vulnerabilities and Risks to Culturally Significant Areas** (WKVCSA), chaired by Andreas Kannen, Germany, and Kira Gee, Germany, will meet in Geesthacht, Germany, 29 January – 2 February 2018 to:

a) Identify socio-cultural features and values relevant in Culturally Significant Areas;

b) Analyse existing frameworks for risk management and adapt them to Culturally Significant Areas;

c) Develop a classification scheme and generic checklist for vulnerabilities related to socio-cultural features and values.

Background

Despite the growing recognition of their importance, immaterial cultural values associated with the sea still tend to be neglected in marine spatial planning (MSP). This socio-cultural evidence gap is due to inherent difficulties in defining and eliciting cultural values, but also to difficulties in linking cultural values to specific places, thus enabling an area-based approach to management. In 2013 WKCES developed the concept of Culturally Significant Areas (CSA) to take a step towards closing this evidence gap. Follow-up activities included WKCCMSP in February 2016 as well as an ICES organised workshop at the 2nd Conference on Maritime Spatial Planning in Riga in November 2016 on the CSA approach. A scientific paper outlining and further developing the approach was published in early 2017 (Gee, K., Kannen, A., Adlam, R., Brooks, C., Chapman, M., Cormier, R., Fischer, C., Fletcher, S., Gubbins, M., Shucksmith, R., Shellock, R. (2017): Identifying culturally significant areas for marine spatial planning. Ocean and Coastal Management, Volume 136, 1 February 2017, Pages 139-147).

WKVCSA aims to take the CSA approach one step further towards operational applicability by developing a generic framework for vulnerability and risk assessment in CSAs. After identifying socio-cultural features and values that make up CSAs in practice (ToR a), WKVCSA will analyse the EBSA (Ecologically and Biologically Significant Areas) framework, using it as a basis for developing a similar risk and vulnerability assessment approach for Culturally Significant Areas (ToR b). Based on this, ToR c is to develop a classification scheme and generic checklist for vulnerabilities related to socio-cultural features and values in order to enable their recognition in marine planning and management. Furthermore, WKVCSA will feed into and inform WKMCSA (see separate resolution), both contributing to significant ToRs in WGMPCZM.

WKVCSA will report by 15 March 2018 (via HAPISG) for the attention of SCICOM.

Supporting information

Priority	WKVCSA is a direct outcome of the work in WGMPCZM linking wit WKQAMSP2012, WKCES2013, WKCCMSP2016 and aspects of the Bow-T analysis discussed in WKRASM2014 and WKPASM 2015. The WK will furth the scientific knowledge base for MSP and directly support work WGMPCZM.
Scientific justification	Despite the growing recognition of their importance, immaterial cultural valu

	associated with the sea still tend to be neglected in marine spatial plannir (MSP). This socio-cultural evidence gap is due to inherent difficulties in definir and eliciting cultural values, but also to difficulties in linking cultural values specific places, thus enabling an area-based approach to management. Throug the activities of WGMPCZM, WKQAMSP2012, WKCES2013 ar WKCCMSP2016, ICES has initiated first steps, which contribute to overcome th evidence gap. WKVCSA (together with WKMCSA) will develop the CS approach further and thereby contribute to further developing MSP.
Resource requirements	None from ICES except secretariat support. Facilities supplied by HZG.
Participants	We expect around 10–15 participants (a mix of practitioners and scientists wi the relevant theoretical and methodological background) to be invited on base their specific expertise in socio-cultural and policy contexts in marine and coast areas.
Secretariat facilities	Help with setting up and managing the sharepoint site and registration page.
Financial	None, the workshop will be hosted by HZG.
Linkages to advisor committees	Development of the science base for MSP in ICES is direcly relevant to ACO and several ACOM EGs and initiatives, as it is for SCICOM EGs and ICE activities related to SDG 14.
Linkages to oth committees or groups	WKVCSA is directly relevant to WGMPCZM .
Linkages to oth organizations	OSPAR, HELCOM, VASAB, EU, UNESCO/IOC and national agencies with MS and coastal management responsibility as well as organisations dealing wi SDG 14.

A **Workshop on Co-existence and Synergies in Marine Spatial Planning** (WKCSMP), chaired by Kira Gee, Germany, and Eirik Mikkelsen, Norway, will meet in Edinburgh, Scotland, 4–6 April 2018 to:

a) Improve on ways to understand and classify coexistence and synergies in marine use;

b) Analyse and evaluate the benefits of coexistence and synergies based on case studies from member countries,

c) Provide advice on how coexistence and synergies can be furthered in MSP processes.

Background

Promoting coexistence and synergistic sea uses is a key issue in marine spatial planning. Synergies can refer to mutually beneficial uses of the same sea space or marine resources, but equally to shared infrastructure, technology or human resources. Coexistence and synergies thus link to issues such as spatial efficiency (supporting more sustainable use of marine space) but also process efficiency to promote blue growth. Despite the obvious importance of synergy in marine use, different types of synergy and the conditions required for achieving them are still insufficiently understood and communicated in MSP. This is recognised in ToR f of WGMPCZM which aims to develop approaches for evaluating the benefits of coexistence and synergy in MSP.

This workshop, co-organised by WGMPCZM, the Horizon2020 Project MUSES (Multi-Use in European Seas) and Marine Scotland, will explore, discuss and promote coexistence and synergies in marine spatial planning. It builds on a complementary work-

shop that took that place in Germany in 2016 (WKCCMSP 2016) and which mostly focused on conflicts. WMCSMP will provide a complementary perspective, leading to an overall picture of conflicts and coexistence in MSP.

WKCSMP specifically aims to identify key requirements for achieving / promoting coexistence/synergy in MSP, based on which a typology of coexistence and synergy in MSP will be drawn up. The workshop also seeks to identify ways of promoting coexistence and synergies in MSP. Using illustrative cases of synergies and examples of promoting them, the aim is to work towards a toolkit for MSP practitioners and decision-makers for use in MSP. WKCSMP will thus also contribute to other significant ToRs in WGMPCZM.

WKCSMP will report by 1 July 2018 (via HAPISG) for the attention of SCICOM.

Supporting information

Priority	WKCSMP is a direct outcome of the work in WGMPCZM, linking with WKCCMSP2016. The WK will further the scientific and practical knowledge base for MSP and directly support work in WGMPCZM.
Scientific justification	Promoting coexistence and synergistic sea uses is a key issue in MSP. Synergies can refer to mutually beneficial uses of the same sea space or marine resources, but equally to shared infrastructure, technology or shared human resources, for example. Coexistence and synergies thus link to issues such as spatial efficiency (supporting more sustainable use of marine space) but also process efficiency to promote blue growth. Understanding different types of coexistence and synergy, and the conditions required for achieving coexistence and synergy, is thus an essential part of Quality Assurance in MSP (see WKQAMSP2012). A typology of synergies is a first step towards designing ways of actively promoting synergies as part of MSP, or the conditions required for doing so. This workshop will build on the workshop "Conflicts and Coexistence in MSP" (WKCCMSP), expanding this approach towards a more specific consideration of synergies. Marine Scotland is hosting this workshop as part of its mandate to provide insights into effects and effective management of multiple human uses of marine coastal environments.
Resource requirements	None from ICES except secretariat support. Meeting facilities supplied by Marine Scotland. Particpants cover own travel and accomodation costs.
Participants	We expect 10–15 participants (a mix of practitioners and scientists with the relevant theoretical and methodological background) to be invited on base of their specific expertise in scientific, socio-cultural, and policy contexts in marin and coastal areas.
Secretariat facilities	Help with setting up and managing the sharepoint site and registration.
Financial	No financial implications for ICES.
Linkages to advisory committees	Development of the science base for MSP in ICES is direcly relevant to ACOM and several ACOM EGs and initiatives, as it is for SCICOM EGs and ICES activities related to SDG 14.
Linkages to other committees or groups	WKCSMSP is directly relevant to WGMPCZM .
Linkages to other organizations	H2020 MUSES project. OSPAR, HELCOM, VASAB, EU, UNESCO/IOC and national agencies with MSP and coastal management responsibility.

Annex 5: Theme Session Proposals ASC 2018

Theme Session Proposal 1 for ICES ASC 2018

Assessing and Analysing Marine Spatial Planning - Knowledge - Indicators - Visions

Description:

Supported by EU policy, MSP has become the tool of choice for many countries to implement both sustainable maritime development and ecosystem-based management. With many countries already implementing MSP and others well on track with national MSP programmes, this is a good time to take stock of MSP developments and question the current ambitions and successes of MSP. Questions must be asked regarding the ultimate objectives of MSP, for example how MSP is linked to an ecosystem approach to management, how it might facilitate blue growth and promote ecological sustainability, and how it contributes to more inclusive and participatory maritime governance.

This session aims to open up perspectives on MSP and ICM from a critical systems perspective, asking how MSP is conceived (visions), what knowledge it draws on (inclusiveness), and how progress and success in MSP could be measured and assessed (indicators and evaluation). A key focus of the session will be on indicators with respect to these issues, including both natural and social science rationales, and looking at existing approaches as well as gaps. The session also invites contributions reflecting on MSP at a meta-level, considering the nature of MSP and where (and how) it needs to be broadened in order to manage our seas in a long-term sustainable way.

Presentations could focus on the following broader themes and areas of research and development:

- MSP visions past, present and future: Is MSP on the right track from a systems perspective?
- Evaluation of MSP and ICM including reflections on what evaluation might imply
- Indicators for MSP in the light of different visions for MSP – what is the role of indicators, and what type of indicators are needed/available?
- Indicators in the context of cumulative impact analysis and the couplings between different activities and sea and land
- Indicators for vulnerability assessments and risk analysis,
- New theoretical perspectives on what MSP is and could be with inspirations from critical theory, planning theory, geography, human ecology and more.

This proposal is based on internal discussions within the WGMPCZM who intends to be co-arranger but also on a number of scientific workshops and conferences in different contexts (e.g. the MSP Research Network, the Nordic Environmental Social Sciences NESS conference in Tampere and the MARE conference). In 2018, there will be a number of upstarting and recently finished research and development in the Baltic Sea and the North Sea area, financed among other by EU DG MARE, Interreg but also by BONUS which will be ready and eager to share their results with colleagues from other marine

basins. The ICES with its trans-Atlantic perspective can offer a great forum for this type of exchange and profit from it for its own internal development.

Convenors: Andrea Morf andrea.morf@havsmiljoinstitutet.se, Kira Gee kira.gee@hzg.de, Riku Varjopuro riku.varjopuro@ymparisto.fi (for strategic reasons because there were others with actual methods to present and because RV has been working with evaluation of MSP in Baltic SCOPE) but needed there might be others (e.g. Andronikos K, Michael G)

Contact: Andrea Morf, Swedish Institute of the Marine Environment, University of Gothenburg, Box 260, SE- 405 30 Gothenburg (Göteborg), SWEDEN, andrea.morf@havsmiljoinstitutet.se, iphone: +46 768 672 699

Suggested theme session format: interactive conference-type with scientific presentations alternating with plenary and group discussions. Based on the submitted papers, the convenors intend to group the presentations thematically and create interactive parts between different subsections, where the presenters and audience might interact both through billboards, round tables, beehives, screen tweeted questions and other methods.

Expected participants: Natural and social scientists with MSP and related method development as research focus, interested MSP and ICM practitioners from all levels (from local to EU) who are interested in new developments and ready to reflect on their practice and ICES community interested in integrated assessments and evaluation..

ICES Strategic Plan

Primarily addressed is "Transatlantic Cooperation for research and marine management: Theme 2: Protect, secure, and develop the potential of Atlantic marine and coastal environments"

The session can also contribute to the theme *Integrative ecosystem overviews and assessments* and *implementation of the MSFD* by connecting this with MSP and integrative coastal management

Science topics highlighted by the ICES Science Committee

- Big data and their uses
- Emerging human pressures and their interactions
- Future scenarios for the sea and society
- Linking pressure and state
- Monitoring (and evaluation) of the future
- Tools to support integrated (marine planning and) advice

Linkages to ICES Steerings Groups and/or Advisory Committee (if relevant):

Y Ecosystem Processes and Dynamics Steering Group

☐ Y Ecosystem Pressures and Impacts Steering Group

☐ Y Integrated Ecosystem Assessments Steering Group

☐ Y Integrated Ecosystem Observation and Monitoring Steering Group

☐ N Aquaculture Steering Group

N ☐ Advisory Commitee

Linkages to ICES Strategic Initiatives and/or ICES action areas on Aquaculture and the Arctic:

- Strategic Initiative on the Human Dimension

Theme Session Proposal 2 for ICES ASC 2018

Making Marine Management Interactive and Creative - Testing The Tools

Description:

Today's marine and coastal management has to deal with complex and ever changing problems implying both many uncertainties and a need for feedback and adaptation and broadly based decisions. Analysis, deliberation and decision making for problem solving requires a lot of communication and creative interaction of many different types of actors. There is also a need for pedagogical interaction with different actor and age groups within society at large to inform about what is under the sea surface and what everyone can do for it to remain alive and provide the ecosystem services we are all so dependent of. This requires both appropriate methods and tools but also training and capacities for communication and creative interaction.

There is a need for method development and discussion and spreading of good practice and applicable methods and tools beyond national boundaries, scientific disciplines and marine basins. There is, in fact, a lot of on-going method development for marine and coastal management through both governmental initiatives and research and development projects. In order not to re-invent the wheel and boos this development, forums to exchange knowledge, methods and good practices are needed. Moreover, these tools and methods may not be relevant just for MSP but also for other contexts where transdisciplinary creative interaction is needed for finding solutions for marine management problems.

The session will focus on tools and methods to create the type of cross-disciplinary and cross-sector discussions needed for integrative marine and coastal management and for raising societal awareness on marine issues. We propose an innovative session format, with various "live" gaming rounds spread throughout the day. The intention is to demonstrate different methods of involvement and participation, including the MSP Challenge game (http://www.mspchallenge.info/), digital modelling and visualisation tools such as the Sustainability Assessment Framework (SAF) or the Baltic Explorer, participatory mapping methods and hands-on decision support tools such as the Q method.

The session will end with a workshop where participants can discuss their experience with the various tools, with the aim of identifying strengths and weaknesses of the tools, development needs and opportunities for applying them in practice. If the idea is adopted, the WGMPCZM will early next year develop a more specific concept - together with

interested and invited people (which might not be on the submitted list of convenors yet).

This proposal is based on internal discussions within the WGMPCZM who intends to be co-arranger but also on a number of scientific workshops and conferences in various contexts. In 2018, there will be a number of upstarting and recently finished research and development in the Baltic Sea and the North Sea area, financed among other by EU DG MARE, Interreg money but also by BONUS and national agencies, which will be ready to share their results with across marine basins. The ICES with its trans-Atlantic perspective offers a great forum for this type of exchange and can also profit for its own internal development.

Convenors: Matt Gubbins Matthew.Gubbins@gov.scot, Malena Ripken malena.ripken@uni-oldenburg.de, Lise Schroeder lisesch@plan.aau.dk

Contact: Andrea Morf, Swedish Institute of the Marine Environment, University of Gothenburg, Box 260, SE- 405 30 Gothenburg (Göteborg), SWEDEN, andrea.morf@havsmiljoinstitutet.se, iphone: +46 768 672 699

Suggested theme session format: Highly practical, hands-on and interactive, running throughout a part of the conference (longer than a session) and ending with a more workshop type of event (a session), where interested participants can learn about and test one or two methods and then in a larger group discuss their experiences and how they would use it in their own professional activities.

Suggested participants: Social and natural scientists with marine and coastal teaching and communication and method development for this purpose as research focus, interested MSP and ICM practitioners from all levels (from local to global) who are interested in new developments and ready to test new methods and reflect on their practice and last but not least the ICES community interested in communication and interactive tools and methods for advisory and other purposes.

ICES Strategic Plan

- Primarily addressed is "Transatlantic Cooperation for research and marine management: Theme 2: Protect, secure, and develop the potential of Atlantic marine and coastal environments"

Science topics highlighted by the ICES Science Committee

- Big data and their uses (in computer based communication and decision tools)
- Future scenarios for the sea and society (and methods to develop and discuss them)
- Tools to support integrated (marine planning and) advice

Linkages to ICES Steering Groups and/or Advisory Committee (if relevant):

N Ecosystem Processes and Dynamics Steering Group

☐ Y Ecosystem Pressures and Impacts Steering Group

☐ N Integrated Ecosystem Assessments Steering Group

☐ N Integrated Ecosystem Observation and Monitoring Steering Group

☐ N Aquaculture Steering Group

Y Advisory Commitee

Linkages to ICES Strategic Initiatives and/or ICES action areas on Aquaculture and the Arctic:

- Strategic Initiative on the Human Dimension