

# WORKSHOP ON TRANSBOUNDARY ISSUES IN MARINE SPATIAL PLANNING (WKTBMIP)

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## International Council for the Exploration of the Sea Conseil International pour l'Exploration de la Mer

H.C. Andersens Boulevard 44-46  
DK-1553 Copenhagen V  
Denmark  
Telephone (+45) 33 38 67 00  
Telefax (+45) 33 93 42 15  
[www.ices.dk](http://www.ices.dk)  
[info@ices.dk](mailto:info@ices.dk)

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## WORKSHOP ON TRANSBOUNDARY ISSUES IN MARINE SPATIAL PLANNING (WKTBIMP)

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### Editors

Roland Cormier • Lodewijk Abspoel • Andrew Minkiewicz

### Authors

Lodewijk Abspoel • Robert Adlam • Stacey Clarke • Michael Conathan • Roland Cormier •  
Sondra Eger • Mike Elliott • Patrycja Enet • Anne Faure • David Goldsborough • Yves Henoc •  
Ingela Isaksson • Stella Kyvelou • Caroline Longtin • Andrew Minkiewicz • Andrea Morf •  
Rachel Mulholland • Caitriona Nicaonghusa • Victoria Poppleton • Ana Queiros • Rafael Sardá •  
David Stevenson • Riku Varjopuro • Alastair Welch



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## i Executive summary

The Workshop on Transboundary issues in Marine Spatial Planning (WKTBIMP) was held as part of the terms of reference of the Working Group on Marine Planning and Coastal Zone Management (WGMP CZM). The aim of the workshop was to identify the key transboundary issues that can undermine collaboration and coordination efforts to address them through marine/maritime spatial planning initiatives.

Given the ongoing progress in marine planning international, transboundary issues between national marine planning initiatives are emerging as a significant challenge to sustainability within a regional sea context. As part of the terms of reference for the workshop, case studies were used to identify the key impediments in transboundary collaboration and coordination, to review the roles of national marine plans and sector technical measures in achieving common transboundary ecosystem, cultural, social and economic objectives, and to review the science needed for effective and timely advice for planners involved in finding solutions to address transboundary issues.

Based on lessons learned from the case studies, a myriad of transboundary issues in marine planning were identified stemming from governance systems, public policy, national legislation and the different mandates of local, regional and national planning authorities including the stakeholders that are involved in these processes. Recommendations for possible next steps identified the need for: 1) the development of classification and taxonomy systems to highlight the differences between environmental and maritime transboundary issues including land-sea interactions; 2) the development of assessment or evaluation techniques to identify the level of coherence between planning initiatives and the implemented plans for planners; 3) an analysis of the enablers and structures were used to find solutions to the impediments of transboundary issues; 4) an analysis of the coherence and linkages of the scientific knowledge regarding transboundary issues and their use in marine planning; 5) theme session proposal for the next ICES Annual Science Conference 2022 on this topic.

## ii Expert group information

<b>Expert group name</b>	Workshop on Transboundary Issues in Marine Spatial Planning (WKTBIMP)
<b>Expert group cycle</b>	Workshop
<b>Year cycle started</b>	2021
<b>Reporting year in cycle</b>	1/1
<b>Chair(s)</b>	Roland Cormier, Germany
	Lodewijk Abspoel, The Netherlands
	Andrew Minkiewicz, United States
<b>Meeting venue and dates</b>	29-31 March 2021, online meeting (24 participants)

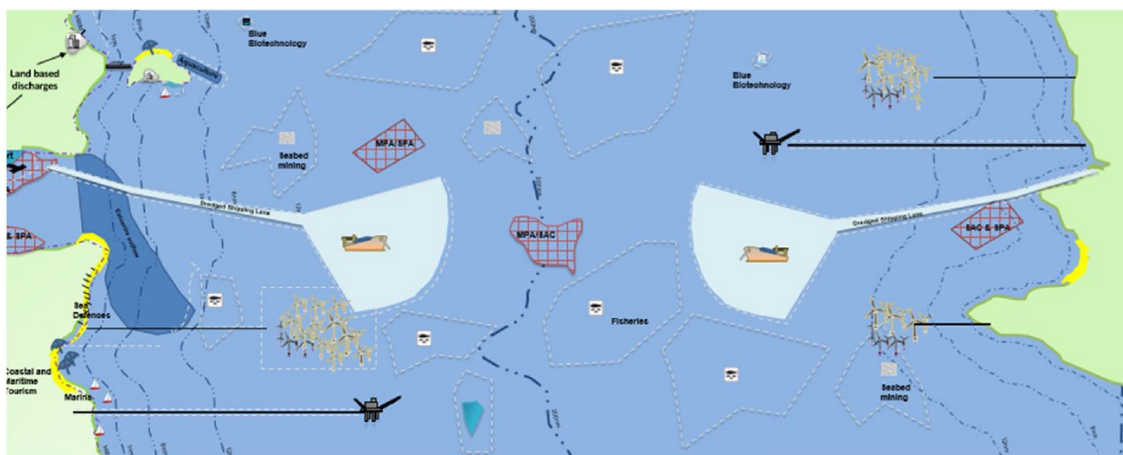
# 1 Introduction

In marine planning, transboundary issues depend on the environmental and development policy context. Expressed through conventions and legislation, the EU Marine Strategy Framework Directive (MSFD); (EU, 2008; EU, 2017) is a notable example of an environmental policy that establishes good environmental status as the objectives to be achieved through programmes of measure of human activities and their pressures. In contrast, the EU Maritime Spatial Planning Directive (MSPD); (EU, 2014) is an example of a development policy that establishes sustainable economic growth, sustainable development of marine areas and sustainable use of marine resources as the objectives of spatial and temporal apportionment of human activities. From these two examples, environmental and development transboundary issues can occur where the management of activities within the boundary of a given jurisdiction causes effects or conflicts within the boundary of neighbouring jurisdictions or undermine the good environmental status of another jurisdiction. Defined by the United Nations Convention on the Law of the Sea (UNCLOS) (UN, 1996), the boundaries of neighbouring jurisdictions are the territorial seas, the contiguous zones, the exclusive economic zones (EEZ) and the continental shelf claimed by coastal states. Outside these areas, environmental and development issues can occur between the activities where jurisdiction is established by flag of the state of the vessels operating in the High Seas.

Derived from the terms of reference of the Working Group on Marine Planning and Coastal Zone Management (WGMPCZM), the Workshop on Transboundary Issues in Marine Spatial Planning (WKTBIMP) was held as a three half-day virtual meeting, 29–31 March 2021 (Annex 2: Terms of reference). The agenda examined the roles of the territorial seas, contiguous zones, exclusive economic zones, the continental shelf and the high seas as the boundaries for marine spatial planning initiatives. Based on lessons learned from examples of transboundary marine spatial planning initiatives in the Europe and the United States, transboundary issues emerging from the differences in legislation, decision-making processes and levels, as well as environmental and development objectives were identified as impediments to collaboration and coordination of marine planning initiatives across jurisdictional boundaries. Issues were also identified for internal jurisdictional boundaries within territorial waters between a regional authority and other authorities of the same state. More importantly, the participants discussed the necessary enablers to avoid such issues becoming bottle-necks to the efficiency of a planning process, show stoppers that stifle engagement and participation as well as train wrecks that can thwart planning initiatives all together (Cavallo *et al.*, 2019).

## 2 Transboundary issues

Transboundary issues requires an understanding of the boundary being used to identify the issues that would arise in coastal, marine and maritime planning (Figure 1). Environmental and socio-economic development issues may arise across various atmospheric, topographic and hydrographic scales from land-sea interactions, whole ocean basin or European regional seas effects as well as global effects such as the effects of climate change. Nevertheless, these issues reflect the differences in legislation and policies that are used to manage maritime activities and across sectors within national, regional and global jurisdictions. For example plastic and other litter pollution are observed at global scales while the major inputs of plastics are from upstream and terrestrial sources that are managed by different national regulatory frameworks. This implies that solving plastic pollution globally ultimately depends the equivalence of the technical measures implemented in such frameworks (Raubenheimer and Urho 2020).



**Figure 1. Transboundary issues between internal and external jurisdiction (Elliott, Borja, and Cormier 2020).**

The transboundary issues identified within a given jurisdictional boundary may be caused by endogenic pressures and conflicts that would need to be addressed by national marine planning processes linking coastal zones and territorial seas within their respective exclusive economic zones. However, the issues identified with a given jurisdiction may be cause by external pressures and conflicts that ultimately requires bilateral or multilateral collaboration and coordination and even conflict resolution across exclusive economic zone boundaries. Issues can be characterized across multiple spatial and temporal scales.

Not all issues can be address through spatial and temporal allocation of activities to address environmental and development objectives (Table 1). For example, health and safety concerns emerging from vessel traffic and renewable energy infrastructure or environmental concerns emerging from physical disturbances to the seabed have spatial characteristics that can be addressed by spatial allocation in a marine plan. However, non-spatial issues emerging from noise and light disturbances to other maritime users or the marine biota cannot not be addressed through a physical spatial allocation. They need additional management targets or standards to reduce their overall impact intensity, spatial impact coverage and their temporal occurrence. These issues can also be characterized as management challenges within and outside the boundaries of a given jurisdiction outside or from issues that do not have clear spatial boundaries (Elliott *et al.*, 2020, 2017) as well as mismatched and overlapping boundaries in relation to actual social-ecological processes. Marine spatial conservation has, so far, been too much focused on



static features in spatial management because they are spatially identifiable (Cormier *et al.*, 2019; Mach *et al.*, 2017; Obura, 2018).

**Table 1. Differences between spatial issues and non-spatial issues.**

Spatial issues	Non-spatial issues
<p>Maritime users</p> <ul style="list-style-type: none"> <li>• Health and safety hazards from spatial use</li> <li>• Encroachment users activities</li> <li>• Displacement of users</li> </ul>	<p>Maritime users</p> <ul style="list-style-type: none"> <li>• Accidental spills and release</li> <li>• Aesthetics of the seascape</li> <li>• Noise and light</li> </ul>
<p>Marine environment (MSFD: EU, 2017)</p> <ul style="list-style-type: none"> <li>• Disturbance of species (e.g. where they breed, rest and feed) due to human presence</li> <li>• Physical disturbance to seabed (temporary or reversible)</li> <li>• Physical loss (due to permanent change of seabed substrate or morphology and to extraction of seabed substrate)</li> <li>• Input of other forms of energy (including electromagnetic fields, light and heat)</li> </ul>	<p>Marine environment (MSFD: EU, 2017)</p> <ul style="list-style-type: none"> <li>• Extraction of, or mortality/injury to, wild species (by commercial and recreational fishing and other activities)</li> <li>• Input of other substances (e.g. synthetic substances, non-synthetic substances, radionuclides) — diffuse sources, point sources, atmospheric deposition, acute events</li> <li>• Input of litter (solid waste matter, including micro-sized litter)</li> <li>• Input of anthropogenic sound (impulsive, continuous)</li> </ul>

Transboundary issues may also arise due to the differences between marine spatial policies, planning processes and management systems used with the spatial boundaries of jurisdictions. Planning is not only influenced by environmental concerns and development trends, (political and societal) targets and baselines are continuously changing during the planning processes and even after the implementation of the plan because of societal perceptions, changing political priorities or the urgency of an issue arising. Although differences in monitoring including data availability, homogeneity, and interpretation of the data, the management information and what is perceived and used as being the evidence for MSP across jurisdictions is most often mentioned. Transboundary issues may be grounded in the differences of institutional planning mandates and sector management approach combined with different capacities of planning administration as well as conflicting values and interests across stakeholder communities. Issues may also emerge from differences in legislation and regulatory requirements from the flag states operating in the high seas.

The challenges and impediments to resolve such issue requires bi-lateral and multi-level collaboration management processes between the competent authorities mandated for marine planning across jurisdictional boundaries may they be internal territorial waters or between exclusive economic zones.

## 3 Presentations and case studies

Six presentations and case studies provided insight into transboundary issues considering European oceans policy, the coherence of marine planning initiative across borders and fisheries management negotiations. ICES Ecosystem Overviews were also discussed as a mean of providing coherent scientific advice in such planning processes.

### 3.1 European International Ocean Governance (ToR a)

Based on a consultation process lead by the European Commission in 2020, the summary of the results of the targeted consultation on international ocean governance was presented within the context of transboundary issues. The key recommendations from this process are:

#### **Maritime spatial management**

- MSP and ICZM, as applicable, should take into account cumulative impacts of ocean stressors at a consistent standard globally and include provisions for Environmental Impact Assessments (EIAs) and/or Strategic Environmental Assessments (SEAs).
- Such actions should become an integral part of the ocean governance framework at an international and EU level to avoid negative environmental and climate externalities, while improving socio economic benefits including for communities.
- Special emphasis should be given to economic and social considerations, as well as to scientific guidelines, when adopting MSP measures.
- Maritime spatial management decisions need to respect the need to achieve and maintain Good Environmental Status.

#### **Marine spatial management for environmental considerations as climate change, pollution, and biodiversity**

- The climate dimension should be better reflected in ocean governance priorities, possibly through a dedicated pillar of adaptive and anticipatory processes including monitoring schemes to reflect cumulative effects.
- Emphasis on climate policies within the maritime affairs framework should contribute to decarbonise the maritime sector, improve climate resilience of the ocean and coastal communities, and ensure policies and management schemes are climate change proof.
- Similar to climate change adaptation and mitigation, the protection and conservation of biodiversity should be among the guidelines for policy making on maritime affairs and should be included in the IOG Agenda.
- The EU should strengthen its effort to protect biodiversity both within and outside of national jurisdiction.
- The EU should ensure the protection and sustainable use of ocean, seas and marine resources with cross sectoral conservation measures for all maritime economic activities and the sustainable use with sector specific measures integrating relevant environmental concerns in close cooperation with the organisations mandated with marine environment protection and conservation.

- The EU should maximise its efforts to build a coherent, well managed and ecologically representative network of protected areas in view of achieving the protection of 30% of the oceans by 2030.
- The EU should promote a holistic approach to ocean conservation and integrated ocean management at the international level, i.r.t. ambitious climate goals and the 2030 agenda objectives.
- Marine pollution needs further attention in terms of regulation (mainstreaming in non-ocean related relevant policies like agriculture) and in ensuring full implementation of existing legislation and policies.
- Further research to identify pollution sources, while monitoring and control are important tools towards effective implementation.
- Additional efforts are needed to clean the oceans from existing polluting substances.

### **3.2 Elevating and strengthening the profile and consideration of the ocean across existing UNFCCC processes (ToR a)**

The ocean is becoming an increasingly important part of the climate change conversation under the United Nations Framework Convention on Climate Change (UNFCCC). In order to bring more evidence and discussion about the ocean in climate policy arena, the UNFCCC has initiated the dialogue with governments. Under the UNFCCC process, governments agreed to undertake concrete activities addressing the ocean, coastal areas and ecosystems to inform adaptation planning and actions at the regional, national and subnational level. All National Adaptation Plans (NAPs) submitted to the UNFCCC Secretariat to date, include projects on ocean and coastal zones. Over 70% of Nationally Determined Contributions (NDCs) mention ocean-related topics with the dominant issues being: coastal impacts, ocean warming impacts, fisheries impact, ocean research and marine ecosystem impacts.

The Subsidiary Body for Scientific and Technological Advice (SBSTA) of the UNFCCC has identified that systematic observation and research is needed to fully understand the role of the ocean in climate change, predict changes, determine risk and appropriate action. The SBSTA is further mandated, under the Research and Systematic observation agenda item, to encourage Parties to support the Global Climate Observing System (GCOS), invest in systematic observation and research of the ocean. The SBSTA 50 (June 2019) mandated several actions under the thematic area of oceans including at the Nairobi Work Programme on impacts, vulnerability, and adaptation to climate change (NWP) that has established in 2019 the thematic area of oceans, coastal areas and ecosystems, including mega deltas, coral reefs and mangroves<sup>1</sup>. A range of activities under the NWP is in progress to advance action through knowledge in this thematic area. At COP25, the NWP organized for Parties the 13th Focal Point Forum on the ocean<sup>2</sup> to discuss knowledge gaps and required collective actions for advancing adaptation of the ocean, coastal areas and ecosystems. These works are carried out by the UNFCCC-mandated NWP Expert Group on the Ocean<sup>3</sup> in the area of the adaptation knowledge gaps in the topic of the ocean, coastal areas and ecosystems, including mega deltas, coral reefs and mangroves as well as slow onset events. In

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<sup>1</sup> <https://www4.unfccc.int/sites/NWPStaging/Pages/oceans-page.aspx>

<sup>2</sup> <https://unfccc.int/event/13th-focal-point-forum-of-the-nairobi-work-programme-on-the-ocean>

<sup>3</sup> <https://unfccc.int/topics/adaptation-and-resilience/workstreams/nairobi-work-programme-nwp/workshops-meetings/second-meeting-of-the-nwp-expert-group-on-the-ocean-17-18-june-2020#eq-1>

addition, various substituted bodies at the UNFCCC are involved in addressing ocean issues through their work programmes, including the Warsaw International Mechanism on Loss and Damage (WIM), the Technology Executive Committee (TEC), the Adaptation Committee (AC).

At COP 25, Parties agreed to launch an official Ocean and Climate Dialogue under the auspices of the UNFCCC<sup>4</sup>. The dialogue in December 2020 provided a space for Parties and non-Party stakeholders to discuss how to strengthen adaptation and mitigation action on oceans and climate change, drawing on the knowledge and scientific findings from the IPCC Special Report on the Ocean and Cryosphere in a Changing Climate (SROCC 2019)<sup>5</sup>. Under the Marrakech Partnership for Global Climate Action (GCA), ocean and coastal zone are a key theme of the UNFCCC global climate action agenda, which has provided a platform for stakeholders to collaborate on ocean and climate change action towards COP26<sup>6</sup>.

### 3.3 Baltic Sea cross-border coherence (ToR a)

A checklist for cross-border coherence of marine spatial plans currently in development was presented as part of the HELCOM-VASAB MSP working group. The checklist is being developed to ensure that maritime spatial plans are coherent and coordinated across Baltic Sea. Practical solutions being considered include transboundary consultations at regional sea level, bi-lateral and tri-lateral coordination to address issues through several joint project of MSP authorities. Although there is a lot of work towards coherence, coherence per se is not yet defined.

A task force established in 2019 has been developing a method to assess cross-border coherence. The approach being examined to assess coherence involves matching and comparison of planning decision across borders analysing potential mismatches. It also examined planning decisions and principles in line with their intended effects which are functions that go beyond the physical maps. The steps of the assessment approach includes:

1. **Scoping:** Topics that require cross-border attention are screened and an understanding of their cross-border relevance. Cross border topics of 'particular concern' are analysed in terms of the distance from the border that they can have negative or positive influence across the border.
2. **Assessment.** The coherence of how the relevant topics are being handled by planning initiatives are analysed in terms of the differences in handling or presenting the topic in marine spatial plans and related documents. The differences are then assessed in terms of their potential problems and risk. More importantly, the solutions are also assessed to minimize the problems and the risks as well as foster synergies.

The method does not measure coherence directly given that such an approach is not a scientific exercise as it is a coherence evaluation of potential problems to identify solutions. This approach facilitates dialogues between jurisdictions as a structure process.

Key guidance documents are also available:

- Guidelines on transboundary consultations and cooperation in the field of MSP
- Guidelines on public participation for MSP with transboundary dimensions

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<sup>4</sup><https://unfccc.int/event/ocean-and-climate-change-dialogue-to-consider-how-to-strengthen-adaptation-and-mitigation-action>

<sup>5</sup> <https://www.ipcc.ch/srocc/>

<sup>6</sup><https://unfccc.int/climate-action/marrakech-partnership/reporting-tracking/pathways/oceans-and-coastal-zones-climate-action-pathway#eq-1>

- Guidelines on the application of Ecosystem Approach in transnationally coherent MSP

### **3.4 Shared stocks: Eastern Georges Bank (ToR b)**

A case study was presented regarding transboundary issues resulting from legislative differences between the United States and Canada regarding the rebuilding of ground fish stocks of the Eastern Georges Bank. The US-Canada Transboundary Resource Sharing Understanding and their scientific and management committees were discussing rebuilding plans for this fishery.

The differences were rooted in the Magnuson-Stevens Fishery Management Act (MSA) requires that all overfished stocks must have a rebuilding plan for recovery within 10 years while at the time the Canadian Fisheries Act did not have such provisions until 2019. The issues arose after the MSA reauthorization in 2006 where the United States is mandated to set allowable catch limits to meet aggressive rebuilding time line for overfished stocks. These limits were dramatically lower than the catch limits being sought by Canada.

It took an Act of Congress to resolve the issues through the International Fisheries Agreement Clarification Act 2010 (IFACA). Given the public and stakeholder concerns being raised through the reauthorization process of the MSA, the IFACA was the only way to move forward with the negotiations for the Eastern Georges Bank as it would not be construed to amend the MSA.

### **3.5 Baltic Sea tackling transboundary challenges and enablers (ToR c)**

Several research initiatives were presented for the Baltic Sea Region that focused on ecological sensitivity and diversity within the context of shared and diverse social context related to trans-border marine spatial planning as well as implementing the MSPD. This research focused on the need for a strong role of regional planning organization leading such process through collaboration of multi-level governance. Marine spatial planning initiatives in the region are at different stages and capacities. The developed MSP Plans by the Baltic Sea's Member States can be of a different character – some of them are prescriptive and some are indicative. Some countries, e.g. Finland, developed their MSP by taking an approach from the coastline towards the marine areas, in this way making the land-sea interactions an integral part of the plan.

As of December 2020, Finland had adopted its marine spatial plan while Sweden started the process for adoption. Besides historical transboundary issues from the ratification of UNCLOS in 1982, there are grey zones of contested borders such as Bornholm and EEZ border between Latvia and Lithuania. The Baltic Sea also includes the Russian Federation which is a non EU member.

Several research and interregional collaboration projects have contributed to the advancement of marine spatial planning initiatives in the Baltic Sea including through the interregional programmes on transboundary collaboration in Europe – INTERREG, and through the research programmes such as the EU Framework Programme for Research and Innovation H2020. Examples of the projects include: BONUS, EMFF, SEAGIS, PlanBothnia, BaltCoast, BaltSeaPlan, PartiSEApate, BaltSpace, BONUS, BASMATI, Baltic SCOPE, Pan Baltic Scope, and Interreg Central Baltic with a sub-programme on the Archipelago and Islands.

Lessons learned from these initiatives point to the need for:

- knowledge sharing across border;
- multi-level governance with clear mandates to collaborate across border;
- Still need to link more and know & learn more across; and,
- Involvement of academia advisory roles and support.

Generally, transboundary issues between marine spatial plans across EEZs in the Baltic Sea is similar to national cross-jurisdictional issues in onshore planning or coastal planning

### **3.6 ICES Ecosystem overviews (ToR c)**

ICES has been producing Ecosystem Overviews to inform management by providing a description of the ecosystems, identifying the main human pressures, and explaining how these affect key ecosystem components. Depending on the regional seas, some overviews provide a more extensive overview compared to others as is the case for the Celtic Seas. Although marine planners have access to these overviews as guidance regarding transboundary issues, planning initiatives need much more specific details to address transboundary issues. The participants provided the following regarding the use of ecosystem overviews in marine spatial planning

- They provide an overarching framework and have been used with stakeholders and, more specifically, fisheries management processes.
- There would be a need for guidance as to what information within the overviews could be used these overviews in marine spatial planning as we as a need to raise awareness with policy makers, planners, the general public, scientists and advisory groups.
- There is a need to standardize the structure and establish a naming convention that includes jurisdictional and fisheries boundaries.
- There is a need to ensure coherence between quality status reports as by OSPAR given that these commissions have a mandate to review the condition of the maritime areas. There is not a clear link between ecosystem overviews which are considered as reference material for quality status reports that are produced through established indicators used to report along thematic areas.

## 4 Lessons learned from the workshop

Competent authorities can only plan and address issues that are within the scope of the authorities provided by their legislative framework and the context of the mandate given by their respective governments. Marine spatial planning as in any type of land-based and coastal planning, depending on the jurisdiction, requires an interdisciplinary approach given the broad range of environmental, cultural, social, economic, legal, and governance issues that have to be addressed (or taken into account); for which in all cases adequate communication and stakeholder engagement are required (Eger and Courtenay, 2021; Eger *et al.* 2021). Impediments to the planning process as well as the adoption of the plan lies in the abilities and capacities of the administrations leading these planning processes and the competent authorities of the various sectors to implement the plans that is more tightly linked to legislation and policies than the scientific and technical information that has to be brought to bear for decision-making (Stephenson *et al.*, 2019). However, it is the objectives given within the mandate of the planning authority that has to be clearly understood by government employees, stakeholders, and scientists involved in terms of either marine spatial environmental planning or maritime spatial development planning. Transboundary issue can also arise between these two planning paradigms.

The lessons learned from the workshop case studies and discussions do identify a broad range of coherence issues that spans institutional and planning designs across the jurisdictions within national borders and across borders within regional seas and management areas (Table 2). There would be a need to conduct further forensic analysis from the vast number of marine spatial planning case studies that are available today. Such analysis would examine if and how transboundary issues have been solved and what were their approaches, as well as the enablers that brought about solutions from a more generic perspective. An analysis of MSP revisions should also be examined to ascertain if transboundary issues were identified given that MSP is a continuous cyclic process (e.g. definition, preparation, implementation and revision); (Zaucha and Gee, 2019).

**Table 2. Lessons learned from the case studies presented and the workshop discussions.**

Case studies	Marine Social Ecological Systems (SES) characteristics	Institutional characteristics	Use of MSP or other approaches	Challenges	Learning so far
Baltic Sea	semi-enclosed sea shallow sea increasing pressures sensitive ecosystem many different types of coasts fisheries as cultural activity under threat CC as threat	HELCOM (non-binding agreements) VASAB 9+ countries Mostly EU + Russia Good international collaboration and history of collaborative problem solving	focus on MSP Land-sea interactions multi-dimensional approach	TB planning issues Many countries Many different systems smaller contested zones (grey zones in UNCLOS) National sovereignty vs EU influence	Lots of learning in terms of TB i interaction and problem solving within EU and HELCOM/VASAB collaboration Research projects
North Sea	shallow and deeper sea high sea/blue economy dependency of many countries/ islands cultural traditions related to sea	OSPAR (binding agreements on protection of biodiversity) long institutional history BREXIT and more non-EU countries – working jointly when of added benefit (north sea energy co-operation)	MSP & LSI  similar to BS, Norwegian mgmt plans	Intensively used marine area, cumulative impacts, ocean restoration, Fewer incentives forcing collaboration. National sovereignty vs EU influence Issue of subsidiarity related to member states	Learning and institutional collaboration in projects and EU Research projects



Mediterranean	semi-enclosed area deep and shallow islands migration as im- portant issue	multiple countries, half non EU, great in- stitutional fragmen- tation, existence of macro-regional coop- eration strategy (EU- SAIR)	focus on ICZM (e.g. Barcelona conven- tion) political issues al- most outside of MSP discussion	migration & security, contested areas (grey zones in UNCLOS) geopolitical struggles linked with energy	The Land-Sea inter- action article becom- ing highly relevant in an area with an ICZM Protocol that makes different refer- ences to MSP and the validation of the Eco- system Approach strategy approved by all parties. Learning and collaboration in projects across the sea-basin have been initiated through UNEP-MAP
Atlantic	large scale case, large marine area, large marine mammals is- sues, multiple eco- system types	territorial waters, EEZ & High Seas	MSP and other in- struments (e.g., inte- grated management plans)	Size Connectivity culture vs environ- ment issues	Workshops focused on the Western At- lantic as well as Eu- ropean initiative (e.g. SIMAtlantic) Sup- porting Implementa- tion of Maritime Spa- tial Planning in the Atlantic ( <a href="https://www.simatlantic.eu/">https://www.simatlantic.eu/</a> ).
Specific transbound- ary use case	marine transporta- tion, increasing	territorial waters, EEZ & High Seas IMO as basic context	Non-MSP or MSP coming in secondar- ily		

Arctic	CC & ocean acidification highly sensitive ecosystem, large contested areas, CC and ice cover changes, invasive species can cross the Arctic,	territorial waters, EEZ & High seas PAME / Arctic Council - now shifting again from environmental to strategic and security issues	Non-MSP so far	globally hot/ conflictive area Lack of framework of enforcement Lack of strong incentives to collaborate multiple planning systems involved that have so far not coordinated across borders	Arctic Council learning?
Global	hot issues, highly sensitive ecosystems,	territorial waters, EEZ & High Seas power differences capacity and development differences	Approach missing	Differences in approaches between government led and local community led, often linked to economic development state of nation.	MSPglobal initiative?

## 5 Enabler to address transboundary issues

Harmonized marine spatial planning frameworks can provide a common denominator between jurisdictions to help resolve and address transboundary issues. Both European MSFD and MSPD provide such framework that establishes common objectives, principles for planning processes and management context for implementation (Stephenson *et al.* 2019). As discussed above, it is the mandate to collaborate and coordinate marine and maritime spatial plans that is needed to address transboundary issues. That is somewhat different from institutions that have scientific and technical mandate to generate the knowledge needed to inform decision-making processes in planning and plan implementation such as HELCOM, OSPAR and ICES.

Transboundary issues lie in the connectivity of many aspects. Based on the ‘Ten tenets’ of adaptive management and sustainability (Barnard and Elliott, 2015), Table 3 could provide a template to identify the transboundary issues and analyse the impediments to resolving the issues and, more importantly, identify the means of overcoming the impediments.

**Table 3. The types of connectivity and their meaning in a transboundary context.**

Types of connectivity/equivalence	Meaning and relevance in a transboundary context	Examples	Impediments to ensuring the connectivity	Means of overcoming the impediments
Legislative connectivity	That the laws and agreements either side of the boundary are compatible and equivalent (in the spirit if not in the letter of the law); that the linking points either side of the boundary in the vertical hierarchy of laws and agreements (from the local, through national and regional to international) are known.	Each state is a member of the EU and so following the Directives, and that each state is a signatory to regional seas conventions and international agreements such as UNCLOS, IMO, etc.	Member states are not implementing directives in the same way; they are not both members of the EU, they are not signatories to conventions or agreements.	Greater direction in implementing the agreements and directives; the need to carry out inter-comparison exercises to ensure compatibility.
Economic connectivity	That the industries and activities occurring either side of the boundary are linked and interdependent and that those responsible for either their execution or management are subject to the same constraints and practices.	Companies are the same either side of the boundary, or they have the same business model.	There are trade barriers between the areas or barriers in obtaining permissions for carrying out activities; there are different environmental impact assessment and protected area regulations which put a company at a disadvantage.	High level removal of trade barriers and adoption of similar and non-discriminatory EIA and protected area assessments.
Sectoral connectivity	That the corresponding sectors either side of the boundary (fishing, aquaculture, oil and gas extraction, offshore renewables, shipping, etc.) are subject to the same constraints, management and practices.	The fishing grounds cover the boundary, there are straddling fish stocks; offshore wind farms occur across the boundary	Regulations for the use of the waters or the seabed differ between areas; there are differences in quota arrangements (size, species, season limits, and discard rates for fishing or in permit systems.	Harmonisation of the regulations or at least of their outcomes; equivalence of industrial regulations including fisheries management. Conflict resolution techniques are used in disputes.
Connectivity of activity-, pressures-	That the areas occupied by a particular activity, the area covered by the pressures (as mechanisms of change emanating from the	A windfarm one side impacts the water movements	That the pressures and effects-footprints cannot be determined even if the site of the activity is known and	A better knowledge of the activities in an area in relation to the local

and effects-footprints	activity) and the areas showing the societal and natural effects of those pressures are known in relation to the presence of a boundary and that they can be managed singly and cumulatively; that the pressures and effects on one side of a boundary but emanating from activities on the other side are known and are able to be controlled.	on the other side; pollutants move across the boundary	licensed. No or limited cumulative effects assessments are undertaken during permitting activity.	dynamics and transport of materials and impacts; similar methods for cumulative impacts assessment are used.
Administrative connectivity	That the same bodies are responsible for marine management either side of the boundary at a higher level (e.g. RSC or international convention) or that at a lower level (e.g. nation, region, municipality, etc.) they have equivalences in terms of duties and procedures; that the horizontal integration of these administrative bodies on each side of the boundary occurs and allows holistic and integrated marine management.	Irrespective of the countries, the OSPAR regional seas convention covers both sides of the boundary; each side has an Environmental Protection body, a Nature Conservation body and an Activity Management body with equivalent duties.	That the different states have a mismatch in administrative bodies such as a lack of a marine management body in favour of merging terrestrial and marine management.	That the different bodies agree to work together and harmonise their ways of working; that there is a good knowledge exchanged of what are the competent organisations and what are their competencies.
Connectivity of Maritime Spatial Planning	That the same approaches and practices of MSP are used on both sides of the boundary or that there is an equivalence of outcomes and outputs if different approaches and practices are used; that zoning or space allocation practices on one side of the boundary do not disadvantage groups of stakeholders on the other side of the boundary.	Countries on both sides of the boundary follow the EU MSPD and plan the seabed use according to a given set of characteristics.	One of the states does not practice MSP or one state allocates seabed use according to where an activity could be rather than where it should be.	That wide-ranging MSP practices are adopted by different countries but that the MSP outcomes have equivalence.
Monitoring connectivity	That the methods used for monitoring (the natural and societal features) either side of the boundary are the same, are inter-calibrated and inter-compared, are on the same elements producing equivalent data, or that	Good Environmental Status of the benthos and seabirds are monitored using the same methods on both sides of the boundary.	One of the states does not have a comprehensive monitoring programme or its monitoring methods and standards are incompatible with providing a coherent status assessment of species or habitats.	That there is coordination between the monitoring programmes, that common methods are adopted and that in-

	there are compatible outputs and the same outcomes irrespective of the methods used.			ter-comparison and inter-calibration exercises are used as necessary to harmonise the outputs and outcomes.
Assessment and reporting connectivity	That the methods of assessment and the forms and lines of reporting are the same either side of the boundary, e.g. that the same indicators and indices are used, that the same combination or weighting techniques are used and that they refer to the same or corresponding elements; that there are equivalence of outputs and outcomes which can be collated and reported to give a complete picture.	The benthic indicators (e.g. MAMBI) are used either side of the boundary; the one-out-all-out method is used both sides for combining quality indicators	There are no suitable indicators or there are different indicators either side of the boundary; the reporting is not consistent in spatial or temporal scales or its timing.	That there is coordination between the assessment and reporting based on accepted guidelines, that common methods and indices are adopted and that inter-comparison and inter-calibration exercises are used as necessary to harmonise the outputs and outcomes.
Physico-chemical connectivity	That the water characteristics and hydrographic patterns either side of the boundary and between the areas on both sides of the boundary are known and not distorted by human activities occurring in one or both areas across the boundary.	The salinity conditions and the water masses are similar on both sides of the boundary and links and there is no oceanographic front to prevent connectivity	Not applicable if the natural state prevents connectivity. Human developments and structures impeding water movements and thus the links between the physico-chemical systems would need to be removed.	Not applicable if the natural state prevents connectivity. Where possible and economically allowed, human developments and structures impeding water movements and thus the links between the physico-chemical systems should be removed.
Ecological connectivity	That the populations and communities either side of the boundary are connected either by migration patterns or by the larval dispersal and settlement patterns, and that	A resident population of a sedentary benthic species occurs in both areas with dominant currents moving from	Not applicable if the natural state prevents connectivity. Human developments and structures impeding water movements and thus the	Not applicable if the natural state prevents connectivity. Where

	there are no interferences such as oceanic fronts or human activities preventing that connectivity.	one to the other and taking planktonic stages from one to the other within the time for metamorphosis thereby ensuring genetic connectivity.	links between the ecological systems would need to be removed.	possible and economically allowed, human developments and structures impeding water movements and thus the links between the ecological system should be removed.
Coastal and marine conservation connectivity	That there are the same practices of nature conservation and restoration on each side of the boundary in relation to species and habitats, that habitat units are treated equally, and that species are given the same protection, especially for highly mobile species.	The two sites have defined the same benthic habitat units and indices of habitat quality, for example there are biogenic reefs either side of the boundary which are designed as priority habitats.	Nature conservation of habitats and species is managed by different practices on the sides of the boundary; the populations of highly mobile and migratory species of conservation importance are influenced by developments away from the areas, e.g. in breeding or nursery areas. Human developments or structures can create impediments to population movements. Different priority species and habitats occur or are so designated.	Not applicable if the priority species and habitats are not the same; equivalence can be achieved using functional groups instead of species names and habitat major types can be harmonised; a better knowledge of highly mobile species can help to achieve conservation outcomes.
MPA-designation connectivity	That methods of designating Marine Protected Areas are equivalent and compatible; that any weighting mechanisms in conservation prioritisation are compatible.	The states either side of the boundary use similar guidelines for marine conservation zones as well establishing and managing marine protected areas, including the principles of coherence, connectivity, representativity and replication; that the MPA legislation is guided by	That the different states use different methods, guidelines and approaches to MPA designation, that the priority species and habitats are not compatible and that different spatial and temporal delimiting methods are used.	That coherence between methods is achieved or at least there is coherence between outcomes.

		international conventions and directives.		
Societal connectivity	That the same groups of stakeholders or groups of different stakeholders but with the same desires and tolerances occur either side of the boundary and that these require similar outcomes.	The two sides of the boundary have defined groups of stakeholders covering those using the seas, managing them and benefitting from the uses.	That it is difficult engaging with stakeholders either side of the boundary, that the groups of stakeholders differ or that there are no mechanisms for engaging with the wider society.	Stakeholder engagement and conflict resolution are practised; wide scale dissemination of outcomes is agreed.
Cultural connectivity	That any indigenous groups which occur on both sides of a boundary irrespective of the national state have similar protection with regard to the use of resources.	Native and first nation groups occur on both sides of the boundary and are regarded similarly by both states.	That any indigenous peoples either side of the boundary have incompatible values and traditions. Rights to resources differ from indigenous peoples across boundaries.	Mediation techniques and behavioural assessments are used. Traditions are respected while striving for equivalence in outcomes within the scope of established rights.
Summary - Connectivity and equivalence in governance approaches, principles and outcomes	<p>That there is equivalence on both sides of a boundary in the principles: sustainable development (for ecology, economy and society);</p> <ul style="list-style-type: none"> <li>• inter-generational equity;</li> <li>• the precautionary principle;</li> <li>• conservation of biological diversity and ecological integrity;</li> <li>• ecological and economic valuation;</li> <li>• the 'damager debt' / 'polluter pays' principle;</li> <li>• waste minimisation, and</li> <li>• public participation - the role of individuals and ethics.</li> </ul>	These principles are embedded in the governance on both sides of the boundary irrespective of whether the two states are in the same bloc.	There is no equivalence in the adoption or implementation of these principles.	A wide adoption of these principles is required. Given that these are embedded in states worldwide and in horizontal and vertical policy integration then this should be achievable.



This is a non-exhaustive list to build on; language, rights and obligations of stakeholders, economic resources in countries, the question of MSP decisions being politically sensitive or not, and many other aspects come in to play. Transboundary does apply within States (e.g. States in the USA, Provinces and territories in Canada), to neighbouring states, and to connections much further (e.g. Norway – France or Canada – Ireland). Further reflection is needed how to incorporate shifting “locations” where marine species are living and the functioning of marine habitats under changing climate and ocean conditions. In particular, where such shifts move species from one EEZ to another, and has implications for fisheries agreements.

## 6 Recommendations for next steps

The workshop highlighted a myriad of issues in marine spatial planning stemming from public policy governance systems, the legislation and mandates bestowed to planning authorities to the local and regional context of the stakeholders involved. The following are recommendations for next steps that could be taken to help planners identify and address transboundary issues.

- a) *Identify the key issues in transboundary collaboration and coordination in marine/maritime spatial planning within a regional sea context (Science Plan codes: 6.2);*
  - There is a need for a classification or taxonomy of transboundary issues that could help planners involved in domestic and international initiative identify the issues. Table 3 could be used to start teasing out the issues and develop such classification system.
  - There is a need for accelerating ocean-based climate solutions for enhanced NDCs and NAPs given the importance of ocean-climate action to meet the Paris Agreement. Strengthening adaption and mitigation through the ocean and climate change action could be enhanced in transboundary MSP to maximize the potential of ocean based solutions for climate action while ensuring other priorities, such as sustainable food production and reversing biodiversity loss.
- b) *Review the different roles of marine planning and sector specific technical measures implemented to achieve common transboundary ecosystem, cultural, social and economic objectives outlined in marine plans (Science Plan codes: 6.4);*
  - Coherence assessment or evaluation techniques could provide guidance for planners that are trying sort out the level of coherence between planning initiatives and the plans themselves. These could also complement national environmental impact assessments and strategic environmental assessments. Policy logic models that are typically used to evaluate the coherence of marine planning initiatives and the equivalencies of technical measures could provide valuable insight in the development of such techniques linking legislation, authority and mandate with planning outputs and implementation outcomes.
  - A forensic analysis of selected case studies could also be undertaken to produce of review paper on the issues with a particular attention to the enablers to find solutions to the impediments to address transboundary issues in marine planning.
  - An analysis of the transboundary issues from land-sea interactions in relation to marine planning initiatives could be undertaken to understand the root causes of the fragmentation of competencies involved in such initiatives.
- c) *Review the science needed for effective and timely advice to planners involved in processes that have to address and integrate regional sea policies (e.g. EU Marine Spatial Planning Directive (MSPD) and Marine Strategy Framework Directive (MSFD)) including international conventions and agreements (e.g. UN Sustainable Development Goal 14 and targets); (Science Plan codes: 6.3).*
  - A proposal for a theme session at the next Annual Science Conference planned for Dublin in 2022 could generate a broader understanding of transboundary issues from an environmental and development perspective. It would, however, primarily focus on enablers and solutions to overcome the transboundary issues and improve the coherence between marine spatial plans.
  - An analysis of the coherence and linkages of the knowledge generated by scientific and technical institutions such as ICES, OSPAR and HELCOM would also help promote a better understanding of relevance of their work in marine spatial planning. This is in line

with ecosystem overviews currently generated by ICES. Recently, WKTRANSPARENT has developed methods and guidelines to link human activities, pressures and state of the ecosystem (ICES 2021).

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## Annex 1: List of participants

Name	Institute	Country	Email
Alastair Welch	Department for Environment Food and Rural Affairs	United Kingdom	Alastair.Welch@defra.gov.uk
Ana Queiros	Plymouth Marine Laboratory	United Kingdom	anqu@pml.ac.uk
Andrea Morf	University of Gothenburg	Sweden	andrea.morf@havsmiljoinstitutet.se
Andrew Minkiewicz (chair)	Kelley Drye & Warren LLP	United States	AMinkiewicz@kelleydrye.com
Anne Faure	Université du Québec à Rimouski	Canada	Anne_Faure@uqar.ca
Caitriona Nicaonghusa	Marine Institute	Ireland	caitriona.nicaonghusa@marine.ie
Caroline Longtin	Fisheries and Oceans Canada	Canada	Caroline.Longtin@dfo-mpo.gc.ca
David Goldsborough	VHL University of Applied Sciences	The Netherlands	david.goldsborough@hvhl.nl
David Stevenson	AFBI Fisheries and Aquatic Ecosystems Branch	United Kingdom	David.Stevenson@afbini.gov.uk
Ingela Isaksson	Swedish Agency for Marine and Water Management	Sweden	ingela.isaksson@havochvatten.se
Lodewijk Abspoel (chair)	Ministry of Transport Public Works and Water Management	The Netherlands	Lodewijk.Abspoel@minienw.nl
Michael Conathan	The Aspen Institute	United States	michael.conathan@aspeninstitute.org
Mike Elliott	University of Hull	United Kingdom	Mike.Elliott@hull.ac.uk
Patrycja Enet	EU MSP focal point North Sea at the European MSP Platform	France	patrycja.enet@gmail.com
Rachel Mulholland	Centre for Environment, Fisheries and Aquaculture Science	United Kingdom	rachel.mulholland@cefas.co.uk
Rafael Sardá	The Blanes Centre for Advanced Studies	Spain	sarda@ceab.csic.es
Riku Varjopuro	Finnish Environment Institute	Finland	riku.varjopuro@syke.fi
Robert Adlam	Mount Allison University	Canada	radlam@mta.ca
Roland Cormier (chair)	Helmholtz-Zentrum Hereon	Germany	roland.cormier@hereon.de
Sondra Eger	University of Waterloo	Canada	seger@uwaterloo.ca
Stacey Clarke	Department for Environment Food & Rural Affairs	United Kingdom	Stacey.Clarke@defra.gov.uk
Stella Kyvelou	EU MSP Platform	France	skyvelou@gmail.com
Victoria Poppleton	Agri-food and Biosciences Institute	United Kingdom	Victoria.Poppleton@afbini.gov.uk
Yves Henoc	EU MSP Platform	France	henoc@ifremer.fr

## Annex 2: Resolutions

**Workshop on Transboundary issues in marine spatial planning (WKTBIMP)**, chaired by Roland Cormier, Germany; Lodewijk Abspoel, the Netherlands; and Andrew Minkiewicz, United States, will hold an online meeting on 29–31 March 2021 to:

- Identify the key issues in transboundary collaboration and coordination in marine/maritime spatial planning within a regional sea context ([Science Plan codes](#): 6.2);
- Review the different roles of marine planning and sector specific technical measures implemented to achieve common transboundary ecosystem, cultural, social and economic objectives outlined in marine plans ([Science Plan codes](#): 6.4);
- Review the science needed for effective and timely advice to planners involved in processes that have to address and integrate regional sea policies (e.g. EU Marine Spatial Planning Directive (MSPD) and Marine Strategy Framework Directive (MSFD)) including international conventions and agreements (e.g. UN Sustainable Development Goal 14 and targets); ([Science Plan codes](#): 6.3).

WKTBIMP will report by 1 May 2021 for the attention of WGMPCZM and SCICOM.

### Supporting information

Priority	<p>The current activities under the ToRs of WGMPCZM are related to the review and reporting of transboundary issues and marine planning processes as the means to facilitate collaboration in management approaches across coastal zones, sea basins and areas beyond national jurisdiction, including the deep sea. EEZ based MSP is under rapid development administered by individual national jurisdictions and policies while acknowledging the need to address human activities and their pressures across sea basins and land-sea boundaries. Transboundary issues are also of primary concern for advancing regional sea marine planning policies in Europe as well as addressing the Sustainable Development Goal 14 targets and Biodiversity targets for 2030 while moving forward on the UN Decade of Ocean Science initiative.</p> <p>WKTBIMP is a direct outcome of the work lead by WGMPCZM regarding marine planning and coastal zone management (ToR d) building upon the series of workshops, cooperative research report and papers produced by this working group.</p>
Scientific justification	<p>Term of Reference d)</p> <p>Review and report on transboundary issues and collaboration in planning, i.e the coastal zone, across sea basins and in areas beyond national jurisdiction, including the deep sea. EEZ based MSP is under rapid development, but human activities, pressures and impacts cross jurisdictional (multilevel governance systems), sea basins and land-sea boundaries and need to be acknowledged and managed accordingly. The present institutional systems, data collection and information flows are not necessarily suitable and need to be redesigned. Hence the ongoing work to improve ocean governance from local to global level (e.g. UN BBNJ process).</p>
Resource requirements	<p>The research programmes which provide the main input to this group are already underway, and resources are already committed. The additional resource required to undertake additional activities in the framework of this group is negligible. WK participants will finance their own participation.</p>
Participants	<p>The workshop is expected to be attended by 15–20 WGMPCZM members and guests.</p>
Secretariat facilities	<p>Standard support to WK.</p>
Financial	<p>No financial implications.</p>

Linkages to advisory committees	There are no obvious direct linkages with the advisory committees.
Linkages to other committees or groups	There is a need for working relationships with other groups, both as needs arise, but also more continuously. This includes not the least SIHD and WGSOCIAL and groups within HAPISG dealing with societal aspects and human activities in the sea, but also groups working on habitats (ToR b), integrated ecosystem assessments and on climate change (ToRc).
Linkages to other organizations	This workshop is closely aligned to current work regarding transboundary marine planning issues at the European level, other national initiatives and the Group of Experts on Risk Management in Regulatory Systems, Working Party on Regulatory Cooperation and Standardization Policies, United Nations Economic Commission for Europe.