Training course on “Science-Policy-Society Interactions in Ecosystem-Based Marine Resources Management and Planning” 22-24-26 March 2021

Report of the training course

April 2021

Co-funded by the European Maritime and Fisheries Fund of the European Union

April 2021

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BACKGROUND

The training course on "**Science-Policy-Society Interactions in Ecosystem-Based Marine Resources Management and Planning**" - which was originally supposed to take place physically in Venice in Spring 2021 - was organised as an online training 22 -24-26 March 2021. Co-organisers are the Mediterranean Biodiversity Protection Community (MBPC) and the BlueMed Coordination and Support Action (Research and *innovation* for blue jobs and growth in the Mediterranean Area) in collaboration with IOC-UNESCO and MSP Global Initiative. Focusing on ecosystem-based management marine spatial planning training, this initiative is being supported by the Marine Institute (Croatia), the National Research Council - Institute of Marine Sciences (CNR-ISMAR, Italy), the European Topic Centre of the University of Malaga (Spain), and the Conference of Peripheral Maritime Regions of Europe (CPMR, France), and communication support from MBPC partners MedCities (Spain) and Latte Creative (Italy).

Pre-selected mid-career candidates were involved as trainees in three morning live sessions with high level experts and researchers to address multidisciplinary approaches and maritime spatial planning (read the topics). Those candidates already attended a preliminary 2-hour mandatory webinar on 17 September 2020 which is now available online. During the introductory webinar, a range of international trainers provided their views and knowledge as experts, to introduce, in a nutshell, the different topics and issues to be further discussed into the concrete training (Report - Introductory webinar -17-09-2020).

Selected trainees will still benefit from a physical workshop - if the sanitary situation allows it – in Fall 2021. The edited sessions of the theoretical lessons will be disseminated via MBPC Youtube, and advanced researchers and scientists, as well as marine planners, will be able to watch parts of this training course. A participant and speakers' booklet has also been published and is available online.

AGENDA

AGENDA MORNING 1

AN INTRODUCTION TO THE INTERFACE OF SCIENCE, POLICY AND PRACTICE IN MARINE SYSTEMS

22 MARCH 2021		
TIME	**TOPIC**	**SPEAKERS**
08.45 - 9.00	**Official welcome**	**Andrea Barbanti,** CNR-ISMAR, Italy **Dania Abdul Malak,** ETC-UMA, Spain **Alejandro Iglesias Campos,** IOC-UNESCO, France
09.00 - 09.10	**Opening of the training with a testimonial**	**Caterina Fortuna,** Marine Institute, Croatia / ISPRA, Italy
09.10 - 09.20	**Trainees' self-introduction**	**Moderator: Chantal Menard,** Spain
09.20 - 09.25	**Overview of the course**	**Elena Gissi,** CNR-ISMAR, Italy & Stanford University, USA
09.25 - 10.25	**Defining politics, policy and practice** **Traits of usable science, credibility and legitimacy** Q/A or short experiences from the field	**Chris Cvitanovic,** Australian National University, Australia **Peter Mackelworth,** Marine Institute, Croatia
10.25 - 10.35	COFFEE BREAK	
10.35 - 10.45	**Trainees' self-introduction**	**Moderator: Chantal Menard**
10.45- 11.40	**Nature/Marine ecosystems and role of MSP** **PART 1** Q/A or short experiences from the field **PART 2** Q/A or short experiences from the field	**Elena Gissi,** CNR-ISMAR, Italy & Stanford University, USA
11.40 - 11.45	5-minute Break	
11.45 - 11.55	**Trainees' self-introduction**	**Moderator: Chantal Menard**

AGENDA MORNING 2

THE MARINE SCIENCE-POLICY-PRACTICE INTERFACE IN THE EU FOCUSING ON THE MEDITERRANEAN

24 MARCH 2021		
TIME	**TOPIC**	**SPEAKERS**
08:45 - 08:50	**Recapture of Day 1** **Presentation of Day 2**	**Chantal Menard**
08.50 - 09.15	**Transboundary marine conservation governance model for the Mediterranean** Q/A or short experiences from the field	**Dania Abdul Malak,** European Topic Centre on Spatial Analysis and Synthesis of the University of Malaga (ETC-UMA), Spain
09.15 - 9.40	**Marine policies in the Mediterranean and how science and knowledge are informing their implementation towards sustainable Blue Growth** Q/A or short experiences from the field	**Andrea Barbanti,** CNR-ISMAR, Italy
09.40 - 09.45	5-minute Break	

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2021 United Nations Decade of Ocean Science for Sustainable Development 2030
Interreg Mediterranean BIODIVERSITY PROTECTION

09.45 - 10:55	**Opening of the Interactive session: The use of EBM approaches as an interface between science, policy & practice in MSP**	**Chantal Menard**
	Case Study 1: Global experience	**Alejandro Iglesias Campos,** IOC-UNESCO, France
	Case Study 2: Baltic Sea experience	**Ingela Isaksson,** Swedish Agency for Marine and Water Management, Sweden
	Case Study 3: North Sea vs Mediterranean experience	**Susana Salvador**, ACCOBAMS, Monaco
	Q&A or short experiences from the field	**Moderator: Chantal Menard**
	Case Study 4: Mediterranean Sea	**Gaetano Leone,** UNEP MAP, Greece **Elena Gissi,** CNR-ISMAR, Italy & Stanford University, USA **Mauro Randone**, WWF Mediterranean, Italy
	Case Study 5: National experiences	**Olivier Laroussinie**, Cerema's technical directorate for Risks Water and Sea, France **Francesco de Franco,** Marine Protected Area and Natural reserve of Torre Guaceto, Italy
	Q&A or short experiences from the field	**Moderator: Chantal Menard**
10.55 - 11.05	COFFEE BREAK	

11.05-11.10	**Introduction to the session**	**Chantal Menard**
11.10-11.55	**Splitting into breakout rooms** - Ingredients for success (key enablers)	**Room moderators: Chantal Menard, Andrea Barbanti, Dania Abdul Malak**
11.55 -12.05	**Reporting from the breakout rooms**	**Moderator: Chantal Menard**
12.05-12.10	**Closing of Day 2**	**Chantal Menard**

AGENDA MORNING 3

SCIENCE-INDUSTRY PARTNERSHIPS

26 MARCH 2021		
TIME	**TOPIC**	**SPEAKERS**
08.45 - 08.50	**Recapture of Days 1 and 2** **Presentation of Day 3**	**Chantal Menard**
08.50 - 10.10	**• The Blue Acceleration: The trajectory of human expansion into the ocean** **Q/A or short experiences from the field** **• Transnational corporations in the ocean economy** **Q/A or short experiences from the field** **• Working with the world's ten largest seafood companies towards ocean stewardship** **Q/A or short experiences from the field**	**Jean-Baptiste Jouffray**, Stockholm Resilience Centre, Stockholm University, Sweden
10.10 - 10.20	COFFEE BREAK	
10.20 - 11.10	**Creating the right incentives to enable ocean sustainability**	**Jean-Baptiste Jouffray**, Stockholm Resilience Centre, Stockholm University, Sweden
11.10 - 11.15	5-minute Break	
11.15 - 12.05	**Barriers to implementing Marine Functional Connectivity (MFC) studies to national/international policies**	**Maria Beger, Audrey Darnaude, Rigers Bakiu,** COST Action, Sea-Unicorn Project
12.05 - 12.15	**CLOSING OF THE ONLINE TRAINING COURSE AND NEXT STEPS TO VENICE**	**Chantal Menard, Andrea Barbanti, Dania Abdul Malak**

INTRODUCTION

Official welcome

Andrea Barbanti, CNR-ISMAR, Italy, thanked all trainers, trainees, attendees, and colleagues. He expressed his personal satisfaction for the results obtained together with all the organizers maintaining the course despite the circumstances, and considering the effort and the patience invested since its conception. He strongly believes in the urgency of reinforcing interactions between science-policy-society, and hope that this course can be a small, but notable contribution in this direction. It will bring benefits in terms of actual and effective growth to all the participants, including the trainers. The CNR-ISMAR is very active in these topics and in the effort to put science at the service of sustainability, societal challenges, coastal communities, and civil society as a whole. And in fact, in the last six years as CNR, they had the opportunity to intensively work at the development and consolidation of the BlueMed initiative that is co-organizing and co-funding this course which is fully in line with its spirit contents and perspectives. Finally, he concluded by sharing open expectations to have a presential course in Venice later in Fall.

Dania Abdul Malak, ETC-UMA, Spain underlined this course is an important opportunity, especially during this Ocean Decade initiative to strengthen our efforts, to provide science but also tools to reconcile the coexistence between nature, humans and their needs. The course aims at ensuring the delivery of mechanisms, tools, knowledge, communication, on how we try to really change the shift, how we use nature for our needs, but also to ensure this reconciliation. The ETC-UMA decided to join forces, together with UNESCO Intergovernmental Oceanographic Commission, CNR-ISMAR, the Marine Institute and the Conference of Peripheral Maritime Regions (CPMR) and other regional partners, to provide practical training. It is an opportunity to learn about practices, how to interact with stakeholders and how we communicate. Young professionals and mid-career coastal and marine scientists, but also planners are provided with an opportunity to talk with each other, to learn about a wider range of concepts about practices, decisions that are really needed, and urgently, and also how to communicate to different types of stakeholders. Mainly, there is the hope that this course will align with other types of actors so we can achieve global and regional goals to ensure more sustainable development in the Mediterranean but also an improved production of biodiversity.

Alejandro Iglesias Campos, IOC-UNESCO, France, stated that we are experiencing how society is demanding Applied Science for policy development, after so many failed opportunities in the past. The Sustainable Development Goal shows it is now more urgent than ever to restart damaged ecosystems. In addition to the UN Ocean decade, the UN Decade of ecosystem restoration aims to prevent, halt and reverse the degradation of ecosystems of all continents and oceans, and helps actually to eradicate poverty, to combat climate change and to prevent mass extinction. Ocean Sciences for sustainable development, in parallel, will mobilize the ocean stakeholders worldwide behind a common framework that will ensure ocean science can fully support society in the achievement of the 2030 Agenda for Sustainable Development; a more coordinated and consolidated observations and research will definitely contribute to the UN processes protecting the ocean such as the biodiversity targets, the Samoa pathway, the UN Convention of the Law of the Sea, the Sendai framework for disaster risk reduction, or the joint roadmap to accelerate marine spatial planning in support of sustainable blue economy strategies worldwide. IOC-UNESCO joins forces with all participants, and also

with the partners CNR-ISMAR, ETC-UMA, the Marine Institute and the CPMR, as stated by Alejandro Iglesias Campos "*to learn together, to share experiences and practices and to define together, united in our diversity, the Ocean we want and we need for the future.*"

From science to policy – testimonial

Caterina Fortuna, Marine Institute, Croatia /ISPRA, Italy

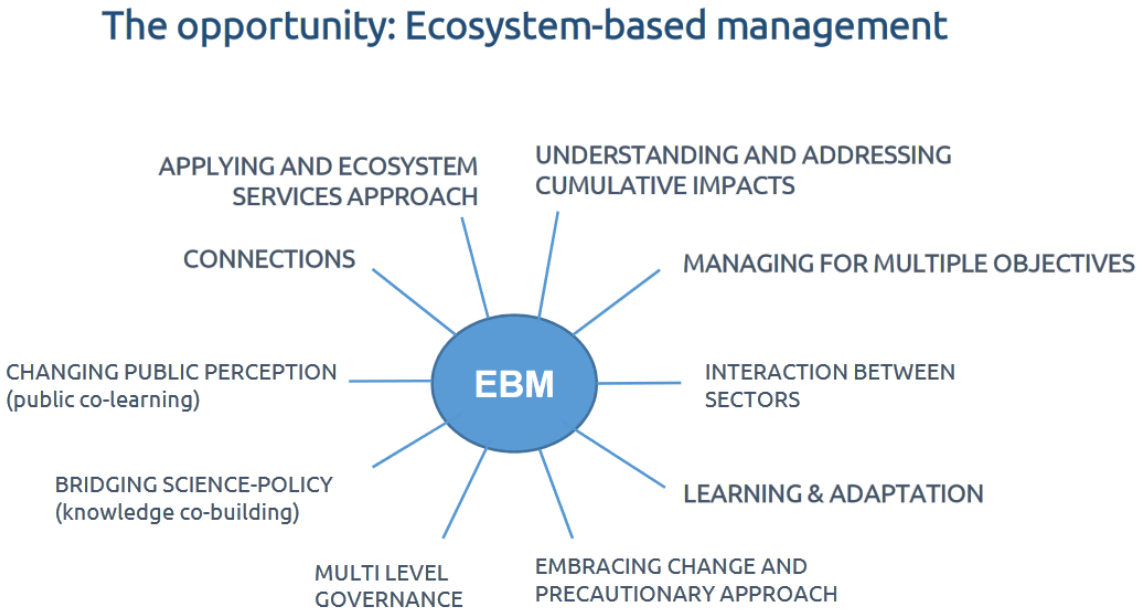
Caterina Fortuna started her career as she was about to quit University where she was doing biology in Florence, she volunteered for a project in Croatia and met some very enthusiastic people about their work and their life, as they were studying bottlenose dolphins in Croatia, in the wild, with a strong spirit of research and enthusiasm. After three years of collecting data, she enrolled in a PhD at the University of St. Andrews, UK and had in parallel a part time job following the same idea of bottlenose dolphins in Sardinia. Basically, she could cover the university fees through that job. She could then by chance follow the International Whaling Commission, a convention for regulation of whaling, which is now mostly doing conservation work. It was more about policy and discussions in negotiations, discussions in the science worlds but also applies to some form of policy. After 15 years, within the International Whaling Commission at the Scientific Committee level, she was representing Italy, both the Scientific Committee and the commission. She was nominated Vice Chair of the Scientific Committee, which is a Scientific Committee of the IWC where there are about 250 scientists from all over the world. There is a very good geographical coverage, with lots of scientists coming also from countries that would not be expected to be seen in usual meetings or conferences. According to the system, after being vice chair of the Scientific Committee of the IWC, she automatically became chair for three more years, so it was a service for six years, organizing the work, the governance of the scientific body and the political body. Before becoming the vice chair, in 2014, she was also doing during the Italian semester of the European Union, the presidency for the whaling Working Group at the EU level. It was also a very interesting situation and experience. As she always perceived what she was doing as a service, she was basically learning all her career and never stopped, and she is still learning. As she said, "*if I did it, everybody can do it. That is true. If you are open, and you can see, if you are willing to adapt to different situations and learn new skills, you can certainly end up doing a lot of interesting activities and cover many different areas. So, keep honest, in the end, do the best work you can do.*"

Overview of the course

Elena Gissi, CNR-ISMAR, Italy & Stanford University, USA

As we are facing a series of challenges that will need to be tackled to achieve the Sustainable Development Goals by 2030, on one side, we know that climate change is pushing marine environment to respond in many different ways to the multiple stressors and drivers (by changing temperature etc.) and on the other side, human activities will be

also affected by climate change. The sea that seems so empty on the other end is very crowded as we all know. Scientists have a role as the people working in bridging science and policy. There is an opportunity which is ecosystem-based management. This course will introduce the opportunity which is given by this integrated approach that sees ecosystems and where humans are part of those ecosystems. Ecosystem-based management is raising the attention, towards integrating and managing for multiple objectives, integrating humans' disciplines, and reflecting on the relationships between marine environment and boundaries between ecosystems or between realms, land and sea and so on.



Mc Leod et al 2005, McLeod and Leslie, 2009, UNEP, 2011

The graphics represent key principles and ecosystem-based management. The purpose of this course is not just a simple training where the speakers and the panelists will pass notions, but it is more about a cooperative experience, where participants share experiences and are not considered just as students, not just trainees, but peers. Through sharing experience, self-reflection will be promoted, and this course will try to understand how to leverage change and transformation starting from what can be learnt from each other as being part of the same ecosystem.

PART 1. AN INTRODUCTION TO THE INTERFACE OF SCIENCE, POLICY AND PRACTICE IN MARINE SYSTEMS

1.1 Defining politics, policy and practice

Speaker: Chris Cvitanovic, Australian National University, Australia	**Keywords:** policy, science, practice, management	**PPT presentation link**
Topic(s): Relationships between science, policy and practice; Personal	***3 min estimated reading time***	**Video link Chris Cvitanovic´s**

attributes for policy impact		**presentation**

Key messages/summary

The relationship between science and policy is not linear. They are complex, messy, and involve lots of different actors and different socio demographic contexts. There is no "one size fits all" approach, but when scientists engage with policy, they have a responsibility, a social responsibility to do it in a way that is ethical. There is no silver bullet, but scientists can influence policy. Chris introduced his childhood, growing up in Canberra and his early interactions with the ocean, as a big part of his life and how he knew at a very young age that he wanted to help our blue planet survive for next generations. As an ecologist, he would have all the knowledge in the world, and could work to influence the world's oceans policy, thinking that by working with the policymakers they would save the world together because policymakers love science. But then, when he started to engage with policy, he understood there are multiple points of entry, multiple policies, legislations, different types of documents, and that there is no such thing as a policymaker. A lot of people are involved in that process and they are all really different. Laws and policies are not ever what they seem, they are much more complex and nuanced than we think. Influencing politics means also influencing the process of policy, including ground management, and a type of knowledge different from academic knowledge, experiential knowledge, traditional and cultural knowledge.
Politics is straight up the activity of the government, the highest level of government, the members of law making, organizations, and how they influence and basically dictate how countries are governed. Government politics is the essential ingredient for producing policies, which are more publicly accountable and justifiable. Everyone has its own political beliefs, politics provides a system for reconciling them, hopefully, for collective action. At the highest level, politics set the agenda for countries' governments. As scientists, and as early career scientists in particular, it is very rare to actually influence as an individual to politics. But by taking a step down, we come to policy. In general, policy is thought of as a statement of intent made by governments, but policies are really complex, with some key parts that can be identified. The first are policy actors, it is important to know who the organizations and individuals are when a scientist wants to engage with. There is a network which is a relationship between the policymakers, the scientists, and the other actors, and they need to be founded on trust and mutual interest. There are also the institutions (where we live in, the ideas, the beliefs, the forms of knowledge and the way people consider how the world works). And then there is a context. To start a scientist has to be able to identify who the key policy actors are, what are the key networks, key institutions, the contexts, and to start thinking about the process of making policies as it is a very long process. Typically, there are different stages in the way the problem is framed, which is how the knowledge is gathered, publicly debated, and framed, the policy is formulated, and decisions are made when an instrument like a piece of legislation is actually selected, then the policy is implemented, and monitored and evaluated. As scientists, and particularly early career and mid-career researchers, we have different opportunities to engage in different parts of the process. Scientists have lots of opportunity to engage in framing the problem, they can work with policymakers to identify problems, such as the impacts of climate change and local marine resources, and they can help policymakers unpack what the long-term implications for society and ecological goods and services might be. They can also have a lot of opportunities to work with policymakers to monitor and evaluate the effectiveness of a policy. But they have no opportunity as scientists to help them make decisions most of the time, as it tends to happen behind closed doors, and

processes where they are not invited into. This approach has to be adapted to each individual context, it is really important to unpack what are the opportunities to influence policy and where they are or not. Then there is the policy management, the on-ground actions required to implement the policy. If it is a policy around the reduction of illegal fishing, ongoing management response might be more about compliance and enforcement. There are lots of opportunities for science regarding management.

Policy is not a uniform topic, it actually refers to lots of different elements, politics, policy management which are embedding different components. Different opportunities exist for scientists, from very small opportunities to big opportunities, to influence policy. The greatest opportunity as science is to actually implement management, and this is where honesty and trust are essential. Scientists need to be able to foster trust between science and policymakers and there are different ways of doing this. Scientists should not advocate and be transparent about their limitations. Scientists work in a system that forces them to win lots of grants and publish lots of papers. They have this tendency to want to know everything, but if they do not know something, it is okay to say to policymakers that they do not know and can connect them with someone else. Scientists need to be transparent about their limitations and be humble. What is seen as the best for the system might actually not be the best for all the groups that live in that system, so scientists need to be respectful of other knowledge systems and be able to embrace ambiguity, because there is lots of ambiguity around policy. They need to be open to new ways of learning, of doing things, to feedback and criticism from policy counterparts. Science is a really small part of the overall system.

Resilience is also key. When trying to influence policy, a scientist is likely going to experience challenges and failures, and personal attack from peers. There are people that can be challenging, questioning morals and ethics. Individuals, particularly early career researchers, who might seek to manipulate for self-gain to get their own career advance. And when this challenging time appears, it is important to think back to when you were younger, to the reason why becoming a scientist. It can help to become resilient to all criticism, and to circumnavigate the complexities of the academic systems and overcome, as early career researchers, the obstacle to engage in policy. A good advice is to find one or several mentors, inside the academy and outside, and to build a successful trusting relationship, with respectful, honest peers with similar values and clear expectations. It can be intimidating to ask people to mentor, particularly around policy engagement, but no early career scientists should never be afraid to ask someone to be a mentor. Accepting that the relationship between science, policy and practice is not linear is a first step. It requires two angles of exchange founded on trust.

1.2 Nature/Marine ecosystems and role of MSP

Speaker: Elena Gissi, CNR-ISMAR, Italy & Stanford University, USA	**Keywords:** conservation, EBMSP, blue growth	**PPT presentation link**
Topic(s): Sustainable blue growth; Ecosystem-based marine spatial	***7 min estimated reading time***	**Video link Elena Gissi´s**

planning, Actions to address conservation with EBMSP		**presentation**

Key messages/summary

Elena Gissi introduced in the first part the principles of ecosystem-based management and specifically its application in marine spatial planning.

Many initiatives worldwide and the sustainable development pushed for a sustainable exploitation of marine resources and their maintenance. But nowadays, there is a shift from the conservation of the core of management towards a sustainable development of marine resources and our ocean.

It became quite critical to understand how we manage to really achieve and to be effective in the sustainability of the economy. In whatever sector, there are many challenges for keeping the uses in a sustainable way in stable levels for the marine environment and specifically for the Mediterranean.

From the theory, to support sustainable development, ecosystem-based management is an integrated approach to management that considers the entire ecosystem, including humans. The general goal is to maintain ecosystem analysis, productive and resilient conditions so that it is able to provide several benefits and several services to humans.

Another important aspect is that the ecosystem - based management differs from current approaches, which usually focus on a single sector or single species or single activity, because it considers the cumulative impacts, so the combination of all the potential effects of multiple uses on the marine ecosystems.

What is really at the core of these ecosystem-based management is the fact that integrated management is an approach that is centered on understanding and leveraging on the connections between the interactive interacting parts. We want to understand all the cause effect relationships that in a way intervenes in the definition of this problem, cause effect relationships that are across horizontal or vertical domains, across jurisdictions or across marine and terrestrial domains, that go actually to the source and to the cause of the problem.

In this analysis of the cause, effect, relationships, and so of the interactions, we need to also connect the communities, the actors, and the agents who can benefit from services. And on the other hand, we also have to connect the decision makers with the communities, actors and agents who act on the system. The very core message of the ecosystem-based management is about the interactions about the connections and interacting parts.

It is considering the connections between all parts of the ecosystems, applying an ecosystem service approach, meaning trying to understand the benefits that the ecosystems are able to provide to the beneficiaries and also to the people that manage the provisioning of these services.

Another important aspect is to understand and address the community impacts, but also in management, and especially managing for multiple objectives and that its learning is a patient process.

When applying an ecosystem-based approach to management it is more than a single sector, it

is a sectoral approach, but it is really related to considering the entirety of the ecosystems even when we deal with one.

The target is the environmental receptors, by going back through the side of pressures, to record, deconstruct the pressures on the specific environmental receptors, we can reconstruct the pressures, through the pressure transfer agent and identify the drivers of such pressures. We can analyse the agents that produce the pressures and also understand the different contributions to our environmental reception.

On the other side, we can also identify the level of knowledge and the level of trust in our assessment by defining the source of knowledge on which we base our assessment.

Starting from the environmental receptors, we know that those components can provide many ecosystem services to a series of beneficiaries, which can be communities but also economic actors or human activities. The environment provides benefits, but also is under stress. On the other hand, ecosystem-based management can manage multiple benefits, but also control the pressures.

Why is marine spatial planning considered as the tool to operationalize ecosystem-based management and to support sustainable development?

Because it pursued a vision. It aims at managing multiple sectors and considering interactions between uses and uses and environment. It operates at a large scale, so it is basically able to see multiple interactions on wider areas and applies an adaptive approach. MSP builds management and planning on the best available knowledge.

Basically, MSP is very similar to the problem when we have to furnish a new room. But of course, at different scales because our common room is our ocean, and our overarching goals are the Sustainable Development Goals. When we do MSP in a real-world example, we basically try to organize uses considering potential future interactions, so avoiding conflicts, and supporting synergies between uses, trying to consider potential negative effects on the marine environment in order to protect marine resources. When allocating a plan, the most important part is that planning is a forward-looking activity, not looking only about the conflicts or the synergies of today, but to project and to think about the future configuration and the visual for the future.

Currently MSP is on the way and is covering almost 50% of the exclusive economic zones. In the Mediterranean Sea, the European framework that is active for maritime spatial planning is being applied by each Member State, considering, and planning their waters so there are specific parts of the sea which are actually underlying their responsibility by the law of the sea. On the other hand, when considering the connections of water masses, we have much to deal with the interactions and connections between waters within the marine regions.

A first case study was presented about addressing transboundary conservation challenges through marine spatial prioritization.

In this study, they try to tackle a very complex problem to try think about setting the 30%

target of conservation in the Adriatic-Ionian region, basically in the entire area between Italy, Croatia, Slovenia and other, in total seven countries. How to share the burden of conservation among the countries to be affected, in an area that shares high biodiversity and valuable marine resources, including EBSAS. With this experiment they decided to illustrate the value, using a special prioritization. The main target of the study was to achieve the 30% target of conservation, considering that in this case they had more than 70 consolidation features in the Adriatic and Ionian region, among six countries and 14 maritime industries. So they used a Marxan model which is a decision support tool to pursue a scenario analysis under the hypothesis to identify priority areas conservation and to reach the 30% predefined conservation targets on one hand, but on the other hand to minimize socio economic cost.

They also consider having a hypothesis with or without the cost of negotiating conservation as a cost of negotiation. In negotiating conservation, they consider the density of maritime uses because in a way, if you want to, for instance, reserve an area for a marine protected area, you have to negotiate with all the users that you have in that area. In a way it is also a cost, for instance, of a transitional cost that has to be managed. When assessing the results of the configuration of the new priority areas for conservation, considering the influences on countries and on maritime sectors. As a result, the influence on how the new priority areas were aggregated was much higher from the side of the costs instead of the influence of the way we set targets at the regional or at national level. They were also able to use the most efficient scenario, which is the one which were the targets were set at regional but with the costs that are the cost of negotiating new protected areas and new conservation areas, and they were able to identify areas which are most important priority areas for conservation and to identify the ones that were at the transboundary level from the ones that were at national level, and this can be an entry point for decision makers to start negotiating transboundary area of conservation.

And another important aspect is that for scientists, working to support policy, the fact that the cost considering the density of uses can be modeled implies that some sectors can get advantages instead of some others. So, the most disadvantaged sector in this case was for instance fishery, so the ones that were the most widespread in the region. It is important to consider as a scientist the transparency on the limit and also on the implication of the type of model that are used to support the decision makers.

The second case study presented was about one of the key points of ecosystem-based management, **how to model the cumulative impacts of multiple uses on multiple and marine environmental components within a real MSP process** that the CNR participated in the Mediterranean, and actually in the Adriatic Ionian region.

In this case , the problem was about modeling the cumulative effects for MSP. They applied a very well-established model about the source stressor endpoint model. They basically modeled the environment, the pressures on environmental components, deriving from human activities and basically, they defined the sensitivities of the environmental components to the specific pressures by an expert survey. They had more than 70 conservation features and 18 pressures and 14 uses. So basically, they obtained a big database about the sensitivities of the environmental components, to the pressures deriving from human uses, but the fact that they worked for a real decision-making process created a series of challenges. The first one was that they had to model the area, which was defined by the geographical scope of the planning,

mandated by the decision-makers who wanted to know the cumulative effects for the entire Adriatic Ionian region.

They involved more than 100 experts in the Adriatic Ionian region, trying as scientists to model where the data was the most robust, but following the scope of planning, they had a problem. First of all, following the scope of planning implies a series of uncertainties. For instance, in the data availability, for consolidation features, pressions and human uses, and also the different knowledge on the cause-effect relationships, pressures, and impacts that they had on the entire Adriatic Ionian region. This availability issue of data changes their view on the model that they had as scientists producing to support the decision. They decided on one hand to run the cumulative effect assessment and to run the model and to build the model, on the other hand they wrote down and reported all the sources of uncertainty that they were diving into. As a result of this modeling effort, they produced a map showing the cumulative effect scores, with the areas that are the most impacted or less impacted, but on the other hand they also produced an index which was about Data availability, so to reflect and to communicate also to policy-makers the fact that they had knowledge and the maximum availability of knowledge in the Adriatic Italian Adriatic side, but less and the least data available on the Ionian area. And then they also produce another index which is the local sensitivity index, which basically tells about the level of knowledge, the level of evidence, showing the confidence of the experts in answering the questions about the level of knowledge they had about the potential effects of pressures on the different environmental components.

By cross reading these, decision makers have a large range of information, seeing that in some cases there are some areas that are hardly impacted with a high level of knowledge but then there are other areas that seems to be the least impacted, like for instance in the southern Adriatic but it is also the area where there is the least knowledge in general, so this is a way of considering the precautionary principle which is a key of MSP, but it is also a key for ecosystem based management. It is essential to verify that there are potentially some adverse effects, so to identify them. The availability of scientific data has to be defined, but also the extent of scientific uncertainty in the analysis.

By tuning the thresholds and the acceptable risks it is an eminent political decision, but as a scientist, the role is to unveil these tradeoffs and to show how taking certain decisions would have affected the area differently.

Ecological Knowledge must be considered and what is the purpose of planning. It means to answer specific planning demands, but there is a challenge about producing ecological knowledge at the geographical scope of planning, and this is not just a matter of setting the model, but if there are really some ecological questions that really need disciplinary effort because of the passage of scale. For instance, experimental results, or modeling results, in real world is still something that marine ecologists are struggling with. The knowledge should be especially explicit and specific to the managed area. It must be very clear that it is the best available knowledge and to revise and adapt the plan as soon as there is new knowledge.

As final remarks, there is a great opportunity now to work for ecosystem-based MSP that can truly support conservation and the fact that management and planning operate in the context of solving problems, requiring specific formulation for hypotheses and models developed by scientists. All the policy demands require specific knowledge and cause-effect relationships that we can work to inform, with the perspective of solving problems and not just unveiling

the relationships of the system.

As a scientist, advocating is risky, but scientists can be very explicit about the consequences and alternatives can be shown to the decision makers and this can make the seed. It is essential to be transparent about the limits of the models or the knowledge that is unavailable, or the best knowledge available. Policy needs scientists and their experiences.

Q&A

Regarding the terminology blue economy or so called "sustainable blue economy". The term blue growth has been used so far in Europe and it's been changing to blue economy but there is no sustainable blue growth as such, because the more you grow, the less sustainability there is. We need to go for a sustainable blue economy that involves all the different economic sectors but how to do it? There is a real challenge to reach sustainability when thinking about this interconnection between the economy, the sectors, the pollution etc.

The challenge is about interconnections. As a scientist working to address conservation with ecosystem based marine spatial planning, my entire research is devoted to try to unveil these connections and try to provide knowledge for decision makers. As a scientist we can all make our part from our field of experience. To support the sustainable blue economy through marine spatial planning, we need to balance social, economic, and conservation. You can also devote space for new marine protected areas to achieve the 30% conservation target. When you elaborate the planning decision and actions, first, we need to understand the cause effect relationships that drive changes in the marine environment so that with MSP you can act on the drivers and the causes of potential negative effects. MSP can really support the idea of controlling and managing potential negative effects of human uses in space and time.

Q: *Now there is a clear push for transparency , but that transparency, and especially participatory engagement with stakeholders is very much limited by the fact that the models and the content of models is a black box to many of us. So, the MSP works a lot with models and there are very sophisticated models such as Marxian and others. The majority of people never understand how the models are built and neither do we see what the inputs into the models and there is a difficulty between ensuring transparency and not making this model very explicit. For policymakers, a lot of times they are just presented with the outcome of models and are not really engaged in all steps and all the different assumptions that are made. So on this specific talk that Elena gave us, I would have a question that relates to whether we can see how this Marxan operates and can we make this a little bit more tangible for those of us that are not within the domain of MSP? But more broadly, I wanted also to raise this issue of science policy interface and so in the interest of having an effective science policy interface, we I think need to be more honest with that and unpacking the models that we use, and I think there is this issue is actually much broader than just to related to MSP.*

It is critical because usually when other scientists interact with decision makers, they don't have so much time to dive into models. So in a way, what I found useful is to interact at the proper level and with the proper context with different persons. So to tailor what the contents were. So for instance, interacting in an informal meeting with a specific agency that is connected to the ministry , and also present the type of model that is used and unveil the

black box.

Trust between Scientists and Policy-makers is not based on the fact that we show models to them, because it's not their role to know how to understand the models. And I also change language sometimes when I have to deal or to speak with them about, for instance, cumulative effect assessment.

The trust of the models is given by the fact that there is a system for these models to be trusted, which is the peer review. There are these mechanisms to trust the models. The challenge is to find the best way of communicating.

1.3 Marine Functional Connectivity (MFC)

Speakers: Maria Beger, Audrey Darnaude, Rigers Bakiu, COST Action, SEA-UNICORN Project	**Keywords:** MFC, data production, management, planning, knowledge, SEA-UNICORN	**PPT presentation link**
Topic(s): Importance of MFC in environmental decision-making; Challenges in MFC data production; The COST Action SEA-UNICORN	***7 min estimated reading time***	**Video link** **Maria Beger´s presentation** **Audrey Darnaude´s presentation** **Rigers Bakiu´s presentation**

Key messages/summary

SEA-UNICORN project representatives opened their presentation with the poll on questions regarding the connectivity and its importance.

Maria Beger opened her presentation with the definition of connectivity, which is the flow of organisms, matter and energy. Species need to use different habitat types for their development. Connectivity can also be a bad thing in terms of disease spreading, invasive species etc. We need to think about with decision and policy makers what is the purpose of protecting ecosystems. Pollutants are a big problem, we can´t fight them by putting the protected area, but rather work at the source, which might be on land where you don't have jurisdiction over when you are a marine manager.
Processes are very important, and they go beyond species when we talk about connectivity. Marine connectivity is the connectivity in the ocean, while the marine functional connectivity is realised by the movements of organisms, or facilitated/caused by them. Structural connectivity is related to physical characteristics of the landscape and they could be habitats completely disconnected or with small connection.
Species that have a large mobility can easily move around (eg. birds that can move from one island to another), but other species don't have the ability to migrate through the corridors that exist. Functional connectivity is the realised movement and it is species dependent and structural connectivity is underlying it since each species is the subject to the habitat.
One of the key questions is: what's our objective? The answer depends on our context. A typical goal could be to manage the complete life's circle. Connectivity is not often a part of people´s management goals. Recruitment and gene flow are the key objectives in many conservation plans where we plan to recover any damaged areas or set an protective area. Bad connectivity is something we want to avoid. It is super hard to do, because half of the time we don't know where the connectivity patterns go and how strong they are, and we also have more objectives.
When talking about examples, we can take spatial planning for 4 sea turtles species in Coral Triangle countries. If we want to protect the entire life cycle of the turtles, we want to think about multiple objectives and ways of dealing with it (protect parts of foraging areas and parts of the nesting beaches, stop people from collecting eggs, but also to ensure protection along the pathways between protected nesting beaches and protected foraging areas).
How to use larval dispersal MFC in MSP? Protection/management of connected areas can follow different strategies:

- Goal 1: persistence, biodiversity: maximise larval exchange between MPAs. You want to think about persistence benefits and you want a protected system that is really well connected to protect two things that interact strongly with each other.
- Goal 2: support fisheries: maximise larval spillover to unprotected sites. If you're worried about a larval spillover, you want to protect areas that enhance other areas as much as possible in order to enhance fisheries in those other areas.

You need to have a level of trust to have the dialogue where you can address your questions. And sometimes it can be hard to find a consensus.
Example of the bad connectivity in the Mediterranean, where there was a viral infection on the east coast of the Iberian Peninsula, a mass mortality outbreak of pen shells that was heading towards the east. It is difficult to think about how to manage invasion, and we can at least see the connectivity models and measurements and think about regions that are less likely to be affected, because they are not connected to the trajectory of the disease. Identifying places

where it is most effective to put human management actions to avoid the spread.
It is really difficult to deal with policymakers. Connectivity was only in 5% of management plans and objectives and there is still very little uptake by policymakers and managers. We can try to think what the boundaries and problems are. It is very difficult to model or measure connectivity. Very difficult to anticipate where, for example, larval will be going and how they will connect. We should not underestimate the invasive species. It is very important to think about connections between places and how to maintain species and habitat. It is always difficult to go from science to provide a really easy pathway to explain how this can work with managers and policy-makers. Difficult to standardise and make it easy to understand for decision-makers.
It is important that scientists and policymakers spend time and effort on talking to each other and to understand their terminology.

Audrey Darnaude put the focus on the challenges in the MFC data production and how difficult it is to gather this information. It is not an easy task to obtain MFC data and knowledge, because:

1. the access to marine environment is limited and the movements in the sea occur in 3 dimensions
2. marine population sizes are large and very few organisms remain sedimentary over their entire life span
3. many marine organisms disperse for substantial distances and there is no clear relationship between species life-history traits and dispersal potential

As a result, a wide diversity of methods/tools from varied disciplines exist to predict, reconstruct or directly track individuals' movements among populations or habitats.
The main methods to describe animal movement are:

1. Animal tagging and biologging (acoustic, satellite and pop-up tags) - all these tags give valuable information for a wide range of animals, but they are not applicable for all taxa and they give only partial information on lifetime movements (battery life).
2. Natural biochemical tags (composition of varied body parts) - they give information about successive habitats of life (nursery, feeding, spawning sites), about population (or stock) isolation/mixing and about environmental record (drivers of connectivity). The problem with this method is that it is mostly limited to relatively large sized animals (often with skeletons), and the habitats/regions must differ in their environmental conditions, otherwise the record is the same.
3. Genetics - (the problem with these is the limited information on lifetime habitat use)
    a) population genetics and parentage analysis - give information on size and structure of (meta)populations, degree of isolation of populations and dispersal.
    b) e-DNA (environmental DNA) - we get the idea of geographical range of the species and diversity of habitats of life
4. Dispersal modelling (biophysical models - oceanic currents + behaviour) - gives the insight on larval dispersal for most aquatic species and dispersal for small or inert sessile organisms. These methods are only predictions and are limited to aquatic organisms. You can only get the partial information on lifetime movements (larval stage only) for large migratory species.
5. Niche modelling (species distribution models) - give present and future possible distribution of species and possible changes in community composition across habitats. The problem is there is no information on the intensity of the flows of organisms and it

is only prediction because it identifies habitats among which connectivity is or will be possible.

What is needed to improve MFC knowledge? There are 3 main challenges:

1. Gather operational MFC data for protecting marine biodiversity - before we do it, important knowledge gaps on MFC need to be filled (self-recruitment, life-history diversity).
2. Produce adequate MFC and associated knowledge for preserving ecosystem services - this requires to link species geographic distributions across life stages to ecosystem functions. We are still very far from it.
3. Understand MFC drivers and forecast its evolution in the face of Global Change - to do that, we need to identify the past and present drivers of MFC.

To get a comprehensive image of connectivity at the community/ecosystem level, we need to have varied techniques/disciplines that study MFC to be unified under a common framework. Doing this, we need to build on practices and needs of community/ecosystem modelers and marine stakeholders.

COST Action SEA-UNICORN project (UNIfying approaches to marine COnnectivity for improved Resource maNagement for the SEAs) started in 2020 and will last till 2024. COST Actions provide networking opportunities for researchers and innovators in order to strengthen Europe's capacity to address scientific, technological and societal changes. SEA-UNICORN aims to advance knowledge and to unify concepts and approaches in the emerging field of MFC research to allow it to contribute to the sustainable management of our oceans.

Main tasks:

1. synthesise existing knowledge on MFC and its drivers
2. harmonise MFC research and promote data integration across disciplines
3. bridge gaps between MFC and complimentary research disciplines
4. bridge gaps between MFC scientists, policymakers, managers and end-users
5. disseminate MFC knowledge to wider audience

Rigers Bakiu presented the aim and activities of the WG3 of the SEA-UNICORN project. The aim is to produce relevant MFC data for management and policy-making and to improve interaction between MFC scientists and the stakeholders. Activities are such as organising annual meetings, practical workshops and brainstorm sessions.

SEA-UNICORN prepared a questionnaire for the trainees of the training course on managers and policy-makers needs for MFC in order to prepare for the discussion on the barriers to implementing MFC to policy on Day 3 (March 26) of the training course.

Q&A

Q (Lucia): To try to link the connectivity and environmental issues with policy, what would be to break the connectivity issue and what would be in terms of economics, linked to resources, gene flow (to show the reverse)?

A: (Maria) If we work in one place without thinking about connectivity, we might protect one particular species if it gets damaged, what is the economic value of the other side loss? Decision-making time is often very short, so telling a politician that a benefit will come in 20 years it is quite a tricky thing when it comes to network planning.

Q: (Peter) Listening to Maria and her last comment that she made, where do we stand with connectivity, if we're gonna talk about conservation burdens? When we talk about higher biodiversity areas that result in less developed areas. For example in the Adriatic, if we look at the transboundary situation, identified the eastern coast and certain areas that had low conservation cost, how do we integrate conservation burdens and who is going to lose more applying conservation, and who will gain more when you talk about transboundary or connective environment?

A: (Maria) Connectivity might give an opportunity to reduce the burden on a certain area that is less developed. But, by enlarging, if you have a part of your land or seascape that is heavily industrialised and another part that is intact, there is sometimes not that much point to assume recovery of those damaged areas, unless they are the reason for assumption. We have to look at what people want. Are we planning on a country scale or a regional scale, and to what degree are local people or nations independent in their decision-making? Connectivity puts one more criteria and burden. In some situations, connectivity can be an asset to protect also upstream and downstream areas.

Q: (Peter) Could you see the payment for ecosystem services, for instance? The downstream benefit is having to pay upstream the people who are paying the conservation burden.

A: (Maria) I have a question back for you - When you are investing, how much certainty would you like that your investment is sensible? How certain are we that we got the connectivity right?
(Dania) How to tackle different issues, and connectivity should be implemented into any pre-planning environment. It is more than one angle but certainly is an important input. We need to entail other angles too (functionality - ensuring the whole ecosystem is functioning together).

CONCLUSION TRAINING PART 1.

PART 2. THE MARINE SCIENCE-POLICY-PRACTICE INTERFACE IN THE EU FOCUSING ON THE MEDITERRANEAN

(Recapture of Day 1/ Presentation of Day 2)

Chantal Menard

The following main recommendations can be extracted from the very enriching first day of training:

- Exploring the urgent need to create more bridges between science and policy in overcrowded seas, what it means in terms of capacities to connect to politicians, to understand how their world works and reflect upon our own characteristics: honesty, humility, resilience, how these traits can make a difference when connecting to the policy world.
- Looked at ways to build trust, how it can be more powerful than advocating.
- Reflect upon how you need to ensure you fully embrace your values and context you operate in (local context, international forum).
- Understanding what is needed from science, how research can feed the needs of decision makers, find the connection, especially that now, there is a clear shift from conservation to blue growth (IBM, MSP, MSC, their challenges and opportunities they represent).
- Learn from concrete examples on how to bring science to the table of decision makers, to help them understand the stakes.
- Accept negative results and uncertainty and how it can be an advantage for more science into decision-making processes.

2.1 Transboundary marine conservation governance model for the Mediterranean

Speaker: Dania Abdul Malak , European Topic Centre on Spatial Analysis and Synthesis of the University of Malaga (ETC-UMA), Spain	**Keywords:** transboundary marine conservation, biodiversity, Mediterranean	**PPT presentation link**
Topic(s): Biodiversity and escalating human impacts on ecological systems, Transboundary conservation pilot action in the Mediterranean	***3 min estimated reading time***	**Video link** **Dania Abdul Malak´s presentation**
Key messages/summary Now it is an important moment to embrace the changes. There is momentum on marine decay and need for conservation, regional and global transformational changes but also on restoration and preservation needs. Many angles to tackle these elements. We need to ensure that ecosystem management mechanisms are mainstreamed in the processes and also that the criteria of transboundary governance are set to support these different dimensions of what decision makers are struggling with: 1) reduce the biodiversity loss 2) reduce the impact of climate change		

3) How to fit everyone on the maritime space

SECTION 1 : Biodiversity and escalating human impacts on ecological systems.

Biodiversity is a foundation of human well-being, of anything we depend on. Need to be well understood to be able to be transported to managers of natural resources at a local level and to decision makers, regional governors.
Example of Posidonia banquette: Plant native to Med, which is a hub of life a marine fauna depends on it, which in turn we do as we sustain ourselves with it. Another important aspect of this plant is its stabilising abilities for coastal dunes and to climate change issues as a sequester of carbon. Taking Posidonia out has consequences. With different programs, some cultural behaviours emerged, for instance, indigenous approaches who have been living in harmony with nature are being studied. It's something that we are trying to achieve in the near future. Need for balance between human activities and its impact on fauna and flora, coastal lines etc. Yet, we are now approaching over-exploitation, Posidonia is directly threatened and scientific evidence shows this trend is confirmed. Posidonia banquette is a representation on how growth, which is not sustainable, is harming the foundation of our lives, reducing the food available through over-exploitation of resources and destruction of natural ecosystems.

SECTION 2 : Current policies and planning tools don't reflect the transboundary nature of sea life

Don't necessarily reflect the transboundary nature of sea life, coastal areas, of nature. Difference frameworks, governance mechanisms, policies, instruments are fragmenting some areas, in our case, marine space. Some policies cover internal waters, territorial waters, international waters and they don't converge to the same aims. Different approaches are put in place on conceptual, institutional, sectoral and governance fragmentation on how to tackle eco-systems issues. There is a lack of holistic and integrated approaches which affect the way these zones are managed.
There is a variability of social, cultural and economic context and systems affecting the management.
There is an unbalanced power when moving from frameworks between countries or sectors. Dominance of some understanding over others and some actions over others. CUMULATIVE IMPACT.
Importance of why we need to look into the transboundary way of governing: need to look beyond borders, adopt a spirit of compromise. Transboundary governance is a tool, a mechanism to overcome differences, and can encourage cooperative works to achieve goals. Need to cure out the goals the cooperation works towards. Cooperation: on communication (sharing information), consultation mechanisms, coordinated action, developing joint management planning and implementation programmes. Heart of it : compromises, need to have an understanding that co-benefits will need to be taken into account. Need to weigh what is more important, there are benefits and trade off when cooperating. Paying attention to equity and access, make sure that adopted decisions are taken with consultation with local, affected and vulnerable community groups.

SECTION 3 : Transboundary conservation pilot actions in the MED :

MBPC good practices and examples: Prioritizing areas where the transboundary approaches

could be tested: EBSAS (attaining global and regional conservation on pelagic & coastal areas, though transboundary cooperation, setting up targets, engaging stakeholders informally to attend these targets).
Particular example of SAIS EBSA: cumulative pressures, importance of habitat and species, habitat sensitivity not represented in current conservation and protection plans, transboundary dimension engaging different areas. An informal WG on it.
Challenges: defining responsibilities (role of potential regional sea programmes); uncertainties (how to foster cooperation between actors); mandates (lack of statutory power and funding).
Need to have a real action plan besides the declarations.

Q&A

Q: (Chantal) How do you connect what you introduced to MSP, EBM,... How is everything connected? That is the complexity, there are lots of different approaches that need to be put together and agreed themselves. How do you scientifically use all these different approaches to be able to come to a politician with a clear message?

A: (Dania) We are at the stage of defining what is priority and how to start planning. There is a need to define, prioritise and agree on how to move forward with activities in a space. It happened on land decades ago and it did not go well. I think there were quite some important mistakes that were done and they should not be repeated. Now we are looking at the sea and looking at it as a big opportunity. This opportunity is sectoral and it does not necessarily take underlying biology and ecology in consideration. This is a starting point - there needs to be evidence put on the table on the need to start from what the sensitivity of the area you're working on is to define what can be done. So if you need to shift your maritime path to reach an area, you will need to shift it because of sensitivity. If you don't take the sensitivity of the environment, you´re contributing to further biodiversity loss.

(Mauro) One point on the governance - the fragmentation is a huge challenge when working with marine and coastal environments. It's not only fragmentation within the region but also the fact that two global initiatives are fragmented. At the regional level we managed to go beyond that because we are entrusted by the government with the entire package - while we work on pollution, we need to look at tourism; when we work on MPA, we need to look back at pollution and climate change. If we manage to better enforce the commitment that are making the governments at the global and regional level and ensure that consistency, we will do a huge service for the region in getting intersectoral dialogue for cooperation.

Q: (Audrey) How are the boundaries of the EBSA position. Are you biased towards marine resources that are exploited? How is it defined - is it based only on biology or do you also enter the information from the uses of the marine resources, functions and services?
A: (Dania) The process of the EBSA took place years ago. It has been done within consensus - there were scientists that were prioritising areas that are sensitive (biologically and ecologically) and countries that commited to define them. What to do with these areas is on the countries to decide on - to put a management plan and to take these areas forward to multi-country planning. This is the basis of it. From there, the steps taken were very little. Very few EBSAs have an Action Plan or agreement on how to move into that. The process is totally open to any formal or informal mechanisms to jump in and to try to reach certain goals. We have the targets, eg. how to reach a 30% protection of the Mediterranean? We are at around 7% of the protection on the 2030 target.

Questions in chat:
Q: (Tahar) What is the difference between EBSAs and VMEs?
A: (Dania) So, VMEs have arised as ecologically sensitive areas prioritised that may be vulnerable to impacts from fishing activities, i.e. One important sectoral activity. The process affects transboundary areas (beyond national jurisdictions (as EBSAs)) but aim at finding measures to prevent significant adverse impacts mainly from bottom marine ecosystems. So, as a summary the VME process is finding solutions to reduce the impacts from one sector (fisheries) on biodiversity. The process of VMEs is advancing and there are areas in the Mediterranean that are already designated and actions are taking place. For EBSAs, this "tool" has Scientific + political consultative process/consensus and has a potential, for the SAIS-EBSA that I presented, you can find more on its characteristics here: https://chm.cbd.int/database/record?documentID=204126.
The SAIS-EBSA contains also important fishing grounds and some areas might become prioritised for regulating fishing practices (like VMEs do).

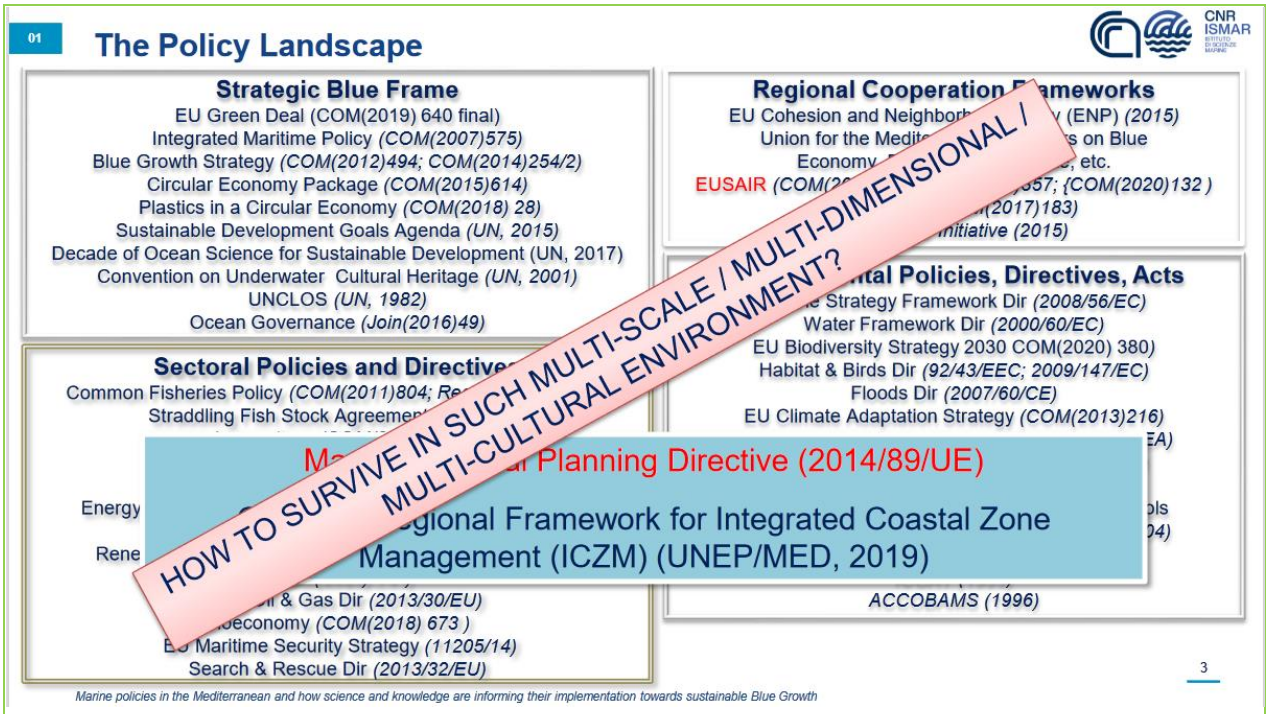
References
Ecologically or Biologically Significant Marine Areas
https://www.cbd.int/ebsa/

2.2 Marine policies in the Mediterranean and how science and knowledge are informing their implementation towards sustainable Blue Growth

Speaker: Andrea Barbanti, CNR-ISMAR, Italy	**Keywords:** policies, Mediterranean, Blue Growth, enablers, MSP	**PPT presentation link**
Topic(s): Marine policies in the Mediterranean, The policy landscape, Cross-cutting challenges and enablers	***3 min estimated reading time***	**Video link Andrea Barbanti´s presentation**

Key messages/summary

The Med as a common sea, which contains common goods well beyond the jurisdiction of countries.
Managing this shared space is a complex exercise. Different entry point.



How to survive when there are such multi- scale/dimensional/cultural environments? Four cross-cutting challenges with some propositions to overcome them :
1) Need to structure Networks: coordinating institutions and organisations in a formal way (how DGs of EU are coordinating, International organisation and areas based Strategies/ establishments.
2) When people work on policy framework: Need for an agenda, to streamline funds according to this agenda and to implement monitoring plans (how actions are effectively implemented and adapt the agenda). Overall need to share data and results.
3) Organise the structure and harmonise policy implementation policies. Enablers: Guidelines, capacity building, joint observing systems and monitoring programmes and pilot projects (promoting joint efforts toward harmonized policy implementation policies).
4) Large differences/imbalance between countries in the MED and enablers to overcome this: research mobility, capacity building, dedicated funds to build cohesion (EU Commission), issue of data sharing.

Policies being implemented

BLUEMED 2015: Research and innovation to promote sustainable blue economy through cooperation:
- Shared visions (documents/declaration/ Agenda and implementation), Plastic free Med sea as a Pilot Project) and research and innovation community being reinforced, start up and promotional actions.
- Perspectives and challenges: improve community (consolidate informal and formal networks), implement coherently through H2020 but also in a multi-programme way, monitor effectiveness of these actions.

WESTMED 2017 (DG MARE) consolidate collaboration, a regional initiative to generate blue initiatives while ensuring protection of Med seas (targeting Blue growth while recognizing the importance of innovation and conservation:

- Achievement: Governmental framework in place, consolidated network, Background documents & Roadmap, pilot project on MSP & Steering Committee and some political declarations expressing the will to promote collaboration.
- Challenges: increased collaboration amongst countries and put political will in the process, bring development of National Strategies based on Blue growth principles and practices to go for a coherent implementation of the Roadmap

EUSAIR: Adriatic-Ionian Macro-Regional Strategy (2014); Developed by EC, Adriatic-Ionian Regions, countries and stakeholders:
- Objective: to address common challenges, foster coordination, create synergies in the areas not only in Maritime areas -> No new funds, legislations, governance, it's based on existing tools and laws. These principles are reasonable but bring complex issues.
- Achievements: governance framework, and consolidated network. Operational tool like facility plan and stakeholder platforms. Direct and indirect steering actions on actions and projects

MSP (Maritime Spatial Planning)
- Important achievements and perspectives: Plans have to be in line with challenging policies, a need to work to apply real transboundary processes and to the process, all countries will develop MSP plans (geopolitics influencing the process), Iisue in data sharing and some game changers.

Take-home messages:
1) Importance of human dimension. Starting from our attitude as scientists to get out of our comfort zone.
2) Sometimes, the process is as important as the results.
3) Science/scientists can play a key role in implementing policies towards sustainable blue growth as “neutral” brokers with stakeholders and countries (Science diplomacy concept).

Q&A

Q: (Inés) Issues of data sharing: boost dialogue between governments to allow harmonisation as well. Boost dialogue on plastic free sea between scientists, locals, fishermen and decision-makers as part of BLUEMED Ambassador.

A: (Andrea) Data sharing is a prerequisite for the implementation of several policies. And most policies actually explicitly address this issue and contain dedicated measures. But still the data sharing remains an open issue for a number of technical and non technical reasons. Besides sharing data, an even more relevant issue is to share knowledge and wisdom (e.g. on plastic-related issues). And this calls for a permanent and structured dialogue among players, as highlighted in the slides.

Q: (Jerneja) Density of Policies. Question on how this works in practice, how does WESTMED work in parallel for EUSAIR for instance, how to avoid overlapping mandates and activities when so many policies are in place? Are there any tensions or a top-down approach?

A: (Andrea) Challenge of concretely delivering results and it can be done through streamlining, updating agenda (through programme/projects, monitoring agenda and a governance

system), fostering more cooperation, etc. As there are many regional and vertical instruments and overarching policy (Barcelona Convention) targeting conservation and sustainable Blue Growth).

Q: (Ant) Data sharing and harmonisation is crucial to get over cross-cutting challenges. How the existing resources such as EmodNet and Copernicus are integrated to this multi-scale policy landscape? Any specific methods developed to overcome this challenge of harmonising and policy integration of the huge amount of data from different sources?

A: (Andrea) EmodNet and Copernicus (mainly CMEMS) are key initiatives in this sense, which are expected to further consolidate and grow in the coming years. Several other initiatives (and related tools and projects) are ongoing on specific sectors (e.g. GFCM on fisheries), specific areas (e.g. Westmed or Eusair), specific policies (e.g. harmonization of methods and monitoring strategies under MSFD and Barcelona Convention Ecap; national geoportals with MSP input and output data). So, a lot is happening, but still the challenge is there and there is an unbalance and partial disconnection between EU and non-EU countries sharing the same Mediterranean.

References

2.3 The use of EBM approaches as an interface between science, policy & practice in MSP (interactive sessions)

2.3.1 Case Study 1: Global experience

Speaker: Alejandro Iglesias Campos, IOC-UNESCO, France	**Keywords:** MSP, MSPglobal	**PPT presentation link**
Topic(s): Case study - Global experience	***1 min estimated reading time***	**Video link Alejandro Iglesias Campos´s presentation**

Key messages/summary

MSPglobal Initiative is led by IOC-UNESCO with the support of the EMFF of the EU and promotes ecosystem-based approaches at global and regional scale through internationally accepted guidance on Marine Spatial Planning and Sustainable Blue Economy by combining different aspects, such as understanding the immensity of the ocean and diversity of actors, all of them with the same right to have an access to use the ocean. Additionally, with regional partners, we need to understand how uncertainty and emerging issues affect the implementation of plans and approaches.

Case 1

Imagine you are a public servant and your boss informs you that the parliament is requesting from your Ministry to start MSP or to prepare a sustainable development strategy. This task will be added to your usual list of tasks and none of your colleagues will help you, and you may have some doubts on how to proceed (you have a background in veterinary and currently working in the coastal marine resources department of your government). How would you overcome these limitations to start planning marine resources in your country?

Case 2

In country X, the planning experiences of the government are many and diverse since centuries ago. The policies under implementation have multiple temporal and spatial scales that are fragmented, and contradictory objectives, which creates uncertainty. Emerging issues are not regulated yet. After each election, the government changes the names of the Ministries, changes institutional competencies, and the state´s transversal policies are not effective any more. What are the basic enablers to address these challenges?

Case 3

Applicable to all the countries in the world. Why do we insist on talking about promotion, ocean literacy, participatory processes and we end up having the same people, institutions, representatives of academia in all our events? How many times the workers that live by the ocean have participated in a MSP event? How would you address the challenge that the majority of them are not participating in processes regarding MSP or Sustainable Blue Economy in your/our countries?

Enablers: participation and inclusion, building institutional capacities, cross-sectoral dialogue, institutional development, legitimacy and mandate.

2.3.2 Case Study 2: Baltic Sea experience

Speaker: Ingela Isaksson, Swedish Agency for Marine and Water Management, Sweden	**Keywords:** MSP, Sweden	**PPT presentation link**
Topic(s): Case study - Baltic Sea	***1 min estimated reading time***	**Video link Ingela Isaksson´s presentation**

Key messages/summary

Actions and approaches developed:

Steps towards adoption: design of a roadmap, early dialogue draft, formal consultations, review of revised proposal, final proposal, to be adopted is a lengthy process.
Several stakeholders in the Region: VASAB & Helcom created a working group on MSP where they developed, MSP principles, Regional Baltic MSP Roadmap (2013-2020) ; Guidelines for the implementation of Ecosystem based approach in MSP and on Transboundary consultations, public participations and co-operation (Co-funded by EU- enabler for capacity building & think beyond borders).
Work as a team, exchange experiences, be part of each member's planning process: since the results were directly shared into national systems and implemented, projects have been based on member state needs and results shared in a usable manner.
Context: Shared resources (one fish resource), one green infrastructure (Map service proved access to Baltic sea MSP data) and one shipping network.
Lessons learnt: Communication as a key, have an early draft for triggers for engagements, transparency, consider the length of the process and make good use of joint learning in regional cooperation.
Enablers: effective stakeholder engagement on a national, between-countries and within-countries level, planning, transparency and accountability.

Q&A

Q: (Jerneja) I was wondering about the challenges that were present in the process in the Baltic and some mistakes that were made and how we can rectify them.

A: (Ingela) Different agendas, political changes, different priorities - this is always a challenge. It is important to work together, to have formal groups, to have formal and informal meetings. You can see the difference in how the countries or their representatives act. It is different when they have the authority to say something in public from when they say it in an informal meeting and discuss it. Having the ones with the mandate around the table, discussing real issues, that is rewarding. You can take it back home to your countries and discuss it in that context. Having planning and environment together is very unique and strong. It's been a bumpy road. We have border issues, it's a bilateral discussion, but you can prepare the questions together as a civil servant and lift it to the proper level and they will have a more formal discussion. It takes a lot of time and patience.

Q: (Dania) To me it would be interesting to hear further about the informal setting. You mentioned that everything started with lots of extra official instruments that initiated the process to start. I think it is not only a project, but believing in the process. There is something behind how the series of projects could lead you in the right direction. What were the elements that were clear? How did countries organised themselves in this informal setting to go and use the funding to do the first step and make it a broader and formal process?

A: (Ingela) Baltic is a narrow sea, still in a bad state. And that was one of the reasons why HELCOM was founded in 1974, when the member states came together and in 2007 the first Baltic Sea Action Plan was agreed on. It raised the awareness of the importance that the consequences of the actions taken in one country will have consequences for the other countries. When VASAB was formed, in 1992, it was about working across borders regarding

planning issues. When I listen to you here, you are on the road and you´re getting together, but I miss the planning perspective and the ones in charge of planning - they need to be on board, because not all countries have appointed responsibilities.

2.3.3 Case Study 3: North Sea vs Mediterranean experience

Speaker: Susana Salvador , ACCOBAMS, Monaco	**Keywords:** North Sea, Mediterranean, OSPAR Commission, Bonn Agreement, ACCOBAMS	**PPT presentation link**
Topic(s): Case study - North Sea vs. Mediterranean	***1 min estimated reading time***	**Video link Susana Salvador´s presentation**

Key messages/summary

OSPAR: Mechanism (16 contractive parties, protect marine environment, 1998) Bonn Agreement: tackling pollution in the North Sea ACCOBAMS: Agreement concluded on Med Cetaceans, not just med but Black sea and Atlantic area, decision to expand to all EEZ of Portugal and Spain (2010 decision)

Do they cover all activities ?

Context of emergence to such agreements: crisis and need for cooperation. Ex: North East Atlantic (fisheries) and Ospar (regional cooperation) so there is a need to overcome the issue of limited mandate to sectors and regions.

They are tools : OSPAR (designates MPAs) /NEAFC (designated vulnerable marine ecosystems), they share information and try to overlap and make their decisions coherent between themselves.

Collective engagement becomes a multi-national mechanism that provides the opportunities for different organisms (sectoral, macro-regional, etc.) to take part and informally share information. Way to further enlarge influence.

Collective arrangement: information on any kind of protected areas, sharing activities and priorities; recognising different competences and scopes of work through a non-binding, informal dialogue platform.

The case of the ACCOBAMS conservation plan on concrete conservations aspects.

ACCOBAMS aims to optimise effort through the Strategical Alliance Barcelona Convention, via regional activity centres (SPA; MedPan) and to coordinate scientific efforts GFMC. These conservation plans consist in sharing of responsibilities to facilitate synergies with three main aims:
- improve knowledge
- reduce human pressures posed to the cetacean population and

- enhance the conservation of habitat based on a cooperation approach.

The collaboration: with general fisher's commission, have a Memorandum of Understanding (MoU), joint projects on mitigation of interactions between cetaceans and fisheries in the Med Sea (tough bycatch and depredation).

Enablers: cross-sectoral dialogue (through an informal sharing of use and experiences), inclusive mechanisms of science-policy interaction, cross-regional dialogue, transparency and accountability.

Q&A

Q: (Barbara) Since you were involved in and had a much closer look into the inner workings of the OSPAR collective arrangement, who were the drivers, who were the actors behind and what can other regions learn from this example if they want to initiate a similar thing?

A: (Susana) Regarding the drivers, the agreement has been formalised between OSPAR and NEAFC, but it was not intended as a bilateral agreement/tool, but rather to take on board other organisations. Until today, both of them are the only signatories to the collective arrangement. It is supposed to become a multilateral tool rather than a bilateral one. Informality of it benefits all. It was started by NEAFC and OSPAR wanting to list their protective areas. They exchanged information about protective areas with regard to different aims of different entities.

Q: (Caterina) Can we say that the collective arrangements, these informal set-ups, are kind of similar to the community of purpose/practice that Andrea was suggesting to implement?
Additionally, in Northern Europe you can capitalise on two things. One is that in the cases that you presented, you had culturally similar parties, so there were no huge differences in terms of culture and society. The other one is that you can capitalise on the recognised world scientific body, which is ISIS, although the original scientific body is an excellent one. This makes a huge difference.

A: (Susana) In the Northern regions, particularly the North-East Atlantic and North Sea, there are similar cultures that could benefit and make difference in terms of agreeing or not on the matters regarding the conservation and protection of marine resources. The Collective Arrangement started reluctantly between OSPAR and NEAFC. There was a memorandum of understanding between them, but they were very suspicious, mainly the fisheries setup, with regards to the intentions of OSPAR. Fisheries didn't want to participate because they thought they would be requested to adopt fishing closures, which would have economic consequences to the countries. It was not easy to start with Collective arrangement even as an informal mechanism for dialogue between two signatories. The intention is to aggregate different sectors (eg. traffic schemes, corridors, macro-sectoral organisation on board) so that you can complement information that you gather at the regional plan with the global information. You cannot proceed if you don't have all available knowledge on board. Communication and confidence building are central.
The data that ISIS receives from countries are different. The fishing data are not accessible to OSPAR directly. It is not easy, there are different problems.

References

2.3.4 Case Study 4: Mediterranean Sea

Speakers: Gaetano Leone, UNEP MAP, Greece **Elena Gissi,** CNR-ISMAR, Italy & Stanford University, USA **Mauro Randone** , WWF Mediterranean, Italy	**Keywords:** MSP, society, science, sustainable blue economy,	
Topic(s): Case study - Mediterranean Sea	***2 min estimated reading time***	**Video link Gaetano Leone, Elena Gissi and Mauro Randone´s presentation**

Key messages/summary

Gaetano Leone: Barcelona Convention: emphasizes the fact that it is a UN regional treaty with three dimensions: institutional (governments, partners), so regulatory, legally binding instrument about implementation.
Unique: need for enforcement, relationship with society and science, but there is also a strategic dimension. Stakes too high for only one instrument to be effective or for one partner to succeed alone. Strong collaboration on marine litter to gather experiences around the continent.

Elena Gissi: Challenges when addressing politicians as scientists. Being at the table with policy makers and NGOs represents a shift from the scientific comfort zone, from being on the field/labs to dealing with negotiations and dialogue (lack of training to address this in a political way also explains it).
Need to be trained on how to leverage knowledge in the negotiation/dialogue attitude through communication tools to achieve a goal by adapting to an audience.

Mauro Randone: have you seen things evolve also?
Key of the collaboration was to explain a sustainable blue economy to an elderly as an effective way of communication. Lesson learnt: collaboration/open cross border cooperation is a recurring theme. Yet, it is challenging because it requires a cultural shift (develop trust, willingness to share data when scientific research might not tend to this initially).
Role of WWF: being the link with stakeholders, trying to facilitate the engagement of stakeholders, but it is meaningless without solid scientific facts and governance to lead to a change.
There are improving enabling conditions in the Med (there are Map partners, regular contact

with the network) but there is still an issue in the context of MSP for WWF, civil society is not seen as an important stakeholder in MSP plans. WWF has been directly involved in two MSP plans in Med regions, and it is one of the most important community-based NGOs in the area. There are barriers for NGOs, so the way to better involve them is great. Regional impact of climate change and therefore a cross border coordinator/approach is required. One thing to work on is to push for early planning and implementation of early planning.
Case of Montenegro: concrete steps for the implementation of the protocol and including for climate change. Within four years, a strategy was developed as well as a national council for climate change. The first step was assessments having data about costs is crucial for better planning activities. It was also identifying the most vulnerable areas and species to allocate spatial and maritime planning. The aim was also to make sure regional stakeholders were involved as well as communities. The next step is to raise awareness on climate change and adoption of coastal protection measures, mainstream climate change adaptation and mobilising public and private finance (crucial success element) and strengthen engagement and partnership between stakeholders (so knowledge and science on climate change). Focus: A lot of progress in Med in terms of involvement of stakeholders and cooperations.

Mauro Randone: Development of marine energy in the Mediterranean. 3 conflicting priorities:
- need to deal with climate change (energy)
- deal with diversity crisis
- deal with conservation targets

Offshore and fisheries coexist. Need to make it work somehow. Floating wind farms -> CNR project Pharos4MPAs -> ecosystem-based MSPs are part of the answer but need to be integrated in a broader framework of inter-ocean management and sustainable blue economy planning. Solid science to feed the strategy in environmental assessment. Cooperation with stakeholders, ministries, regional initiatives, etc. is crucial.

Elena Gissi: Italian MSP process: scientific consultants need to support scientific knowledge on cumulative negative effects of multiple uses. Framework to build this knowledge needs to be accepted by policy makers, so complicated modelling effort, limit of resources. Scientists decide research topics work on topics not needed for policy makers. Discussing with ministries on what we produce and how to produce this, by pushing windows of opportunities. Climate change is a broad topic -> incorporation of this topic: what is reliable to see what kind of policy can be built on this. Knowledge assets through scientific mechanisms and how to communicate it to decision-makers.
Need for transparency and clarity is an important enabler too.

Enablers: emphasis on collaboration, stakeholders engagement, trusting mechanisms of science-policy

2.3.5 Case Study 5: National experiences

Speakers: Olivier Laroussinie , Cerema's technical directorate for Risks Water and Sea,	**Keywords:** France, sea basin strategy, MPA Torre Guaceto	**PPT Franccesco de Franco presentation**

France **Francesco de Franco,** Marine Protected Area and Natural reserve of Torre Guaceto, Italy		**link** **PPT Olivier Laroussinie presentation link**
Topic(s): Case study - French and Italian experiences	***1 min estimated reading time***	**Video link** **Olivier Laroussinie´s presentation** **Francesco de Franco´s presentation**

Key messages/summary

Olivier Laroussinie:
France: General Strategy for Sea and Coast and then a sub strategy on Sea basin imply the implementation of MSP.
Scientific input: individual scientific reports, synthesis (presenting initial assessment of Sea basin) and a more final synthetic draft. Involves Technical institutions (CEREMA and biodiversity protection institution), policy makers.
The aim is to gather stakeholders (Sea basin Committee) and more general public through public consultations (internet participative platforms and citizen workshops) discussing issues and vision.

Strategic objectives and vocation map:
For the Med, 115 Strategic objectives, amongst which 50 are environmental and 20 for ecological transition. In the process, the technical agencies provide assessment of cross checking the impact of strategies between them, to help adapt the measures and reach final decisions.
Vocation map: 30 areas, for each there is a specialisation of the objectives of the sea basin.
Strategic objectives: proposed by political advisors and looking for scientific advices. Adaptation from policy makers (ex: Posidonia Bed, barrier reef)

Enablers: transdisciplinary and socio-ecological approach

Francesco de Franco: Torre Guaceto MPA
How scientific monitoring, governance can be strictly linked in management of MPA.
MPA: biodiversity protection areas (protection of habitat, provide global climate regulations, reproduction grounds etc). Objective is to balance the conservation agenda and the need of sea users to sustainable use (guarantee livelihood and limitation for conservation purposes).
Reducing fisheries in MPA: through regulations (zoning, limitation in licences, frequency and materiel allowed).
Challenge for the future: maintain fishermen income, need to find alternatives to catching income and to reduce fishing efforts. Solutions could be the promotion of value chain in the sea-food products.

Enablers: effective stakeholders management

2.4 Breakout rooms session

2.4.1 Room 1 – Summary of discussions

Key enabler: Transparent and inclusive mechanisms of science-policy interaction.

María: I work in Marine Research Institute with public funding and we are working together with a competent authority for the MSP and also to implement the marine strategy framework directive. Sometimes, the policy doesn't want to take into account the science opinion because it might be against the economical interest. In Spain, with the current government, we have more interest in conservation. The Directive makes it mandatory. It is important to have a clear policy from Europe, otherwise in Spain it would be very difficult to agree on a common policy to implement this kind of policies. It is important and it was the beginning to work together on a dialogue/interaction between science and policy. I have to be critical towards the research community - sometimes, policies receive different opinions from scientists. We have to work on a collaborative and common framework, because we don´t want to send different opinions, it is against our credibility.

Dania: I think you have two points. One is on the policy side, where you think that many cases the science advice is not taken into consideration. From the other side, there is no consensus from the science itself that provides different messages that makes the decision-maker looking somewhere else.

Marta: The main barriers/limiting factors are various. From a science perspective, we have to be more comfortable coping with uncertainty. Also, there needs to be more independence and replicability of the results. If the result is not replicable, it cannot be tested elsewhere. If a result comes from a funding opportunity that doesn't allow for independence, it can be viewed as biased. There are barriers that are within both science and policy - language barrier which is completely different. And not only language, but the way we communicate through papers. The difference in a target audience - the target audience of a scientist are other peers, while the policy-makers need to cope with a wider target audience. Other barriers are different time frames that science and policy have. The scientist can provide solutions or recommendations in a wider time frame. Policy time frame goes with the directives, they need to fulfill the deadline or European Directive.

Giulio: In my experience, working with peculiar sectors, such as fisheries, there is a stronger system of stakeholders. We can give us all the responsibility of the wrong communication of their lack of capacity to put clearly what we achieve in our research activities. We still must be brutal, saying that the political and economical systems do not allow a shared way to solve problems. Many sectors are resistant to any form of innovation that comes from outside. Ofter, the scientist is seen as the one that doesn´t want fishermen to fish, but there is an immediate assistance that is based on a political system of lobbies that are fully empowered with political decision-makers. This is keeping scientists from active participation to management and processes. All committees must work together to have a similar strength in influencing politics and decisions, starting from local issues (Northern Adriatic management of fisheries).

Elena: Solution would be to train scientists about what is a policy process. Planning is seen as a technical activity. If you know GIS, you can plan - this is absolutely false. In academic curriculum, this is a very strange understanding. Working with a network of women in science - a mechanism would be to make a call for consultants in decision-making processes much more transparent. Female scientists are not in the power rooms and we should modify it.

Dania: I agree, one is a gender thing, especially in Mediterranean, it is not easy to become a leading scientist. In our training mechanisms, we need to ensure that young professionals have a clear understanding on how what they are doing would end up changing something.

Tosca: We would benefit from knowing better how policy-making happens, but also about economy - to be able to speak in economic terms. If we don´t know the language of economics and if we are not able to show errors in their thinking, the weak points in the reasoning will not win. How conservation and MSP contribute to the Blue Economy?

2.4.2 Room 2 – Summary of discussions

Key enabler: Transparency and accountability.

Susana: Communication, enabling exchange of opinions. We are people, institutions are made of people, it is important that we have the right personality traits and the right level of openness and to listen to other interests and points of view. If we start to reflect on these, we have a tendency to see things as opposites. We see science as opposed to policy-making, we see politicians and managers as opposed to scientists and those that have scientific information. This is a simplistic way of seeing things. We all make part of the economy. If you want to change it, we need to start by our own behaviour. Are we able to boost changes starting from our micro-situation? Are we able to get rid of cars, are we able to start walking, cycling? The sea also depends on us, everything is interconnected. Transparency and accountability are important. Accountability is for everyone participating in common construction of how to protect resources, our common heritage. We need an honest discussion between scientists and managers. They need to be transparent in terms of looking into levels of protection, with regard to levels of Sustainable Blue Economy.

Cintia: We as a scientist need to understand what policy-makers need and how are the new concepts (ecosystem-based approach, climate change, EU Directives, biodiversity) viewed in the policy side and how difficult are to implement? How do we provide the best solution? As young researchers, can we get support?

Chantal: in the Mediterranean we have to be very clear - there is corruption - quite an important issue and a barrier to guarantee there is credibility and accountability. If you have corruption, you have a lack of trust, and if you don't have trust, you don't manage to implement policies properly, based on the trustful relationship with the scientists.

Mauro: I also think that these processes happen behind closed doors and it takes time to build trust. Involving stakeholders is keypoint here. It's a long process, a matter of meeting people and knowing them for a long time. One thing that helps is make sure that you put

upfront your objectives, making sure you´re transparent from the beginning at the meetings. I don't think we are educated enough to have transparency, we need to change how we approach the stakeholders' consultation processes and meetings with authorities.

Susana: At a national level, countries should also make clear what their objectives are and how committed they are in regards to international organisations that we have been talking about. Accountability is that - how far do we go? Even when there are legally binding organisations and this multiplicity of countries adopts measures, we know that these measures are not complied with. The example is of drift nets in the Mediterranean - there is a ban, and there are still entanglements of cetaceans which are also increasing. It is important to understand what policy-makers need from scientists. Additionally, to have standardized baseline data. We cannot compare what is not comparable. ACCOBAMS did it for the first time - they collected baseline data on a basis of agreed, harmonised methodology between countries. You need continued monitoring efforts.

Paul: We have various expectations of each other - scientists have expectations of what they want policy-makers to do, and policy-makers likewise have expectations of what scientists are supposed to do. Eg. when we have global events where politicians have to present issues regarding national approach on whaling, sharks. And you receive emails from government officers: we need this information asap! And often you don't have enough time to provide the information that is needed. Scientists are under pressure to just present things for the sake of what politicians want to do. When we as scientists plan projects, we don´t think about the impact that we want to have in terms of policy. Lack of communication and a siloed approach of agreeing things are disadvantageous - we see each other as different units, when we only need each other at some point, but not right from the beginning when we begin the project. Scientists need to know that publications will not necessarily communicate to policy-makers. We need to know what kind of information do we need to present to policy-makers to ensure that our research can be taken up and in which format? Additionally, scientists and policy-makers have a different mindset of what a Blue Economy is. Politicians are thinking about money, jobs. We cannot think about jobs only, but how to make jobs sustainable, and how do we ensure that our resources will be there for our future populations. We cannot blame only politicians, but ask ourselves as scientists, where did we go wrong and how can we change that? We need to be open in research and involve politicians from beginning to end.

2.4.3 Room 3 – Summary of discussions

Key enabler: Institutional capacity and resources requiring multiple competencies and skills as well as transdisciplinary understanding.

Olivier: Among barriers, marine planning is still a recent activity. Institutions need time to adapt to new research programs. The ability to adapt to the amount of new questions and cultural barriers are other barriers. We had difficulties in France in regard to spatial planning in the sea, which was not possible for old specialists of the sea, because the sea is a free common zone.

Andrea: Institutional capacity and resources management are key issues, but are not the only one. They have to be part of a structured approach to science to policy practices, together with other aspects. We need to develop an improved legislation framework. Governance is lacking and not properly developed. Working on exchange and capitalising on experiences of other countries is key. Governance is also about engaging people, we need to find a way to achieve this.

Sara: focussing on institutional capacities and resources, the main issues faced by authorities that are tasked with the responsibility of marine planning and reinforcing policies are funding and manpower within the institution itself. A better understanding of governance mechanisms in a country itself - who does what, who is responsible for what. The key barrier to transboundary cooperation: if there is no precedent for cross-border cooperation, it is difficult to start a process. Starting to think together and lack of prior transboundary cooperation experience are barriers. Solution: each country is a different case but the lack of funding or manpower are common barriers preventing cross border cooperation. But you can reach out to others, find potential partners for support, use existing networks. Getting a better understanding of governance is having the conversations within the government itself.

Ant: Transboundary issues are important regarding interactions between countries. We need to tackle the issues about the differences between EU and non-EU countries in order to standardise and to get to a minion consensus regarding skills and competencies. More organisations on training and knowledge sharing activities, especially including individuals and institutes from non-EU countries. In this way it is possible to maintain/develop a success model as the one of the Baltic.

Olivier: Institutional capacity is the problem for stakeholders too. They are newcomers, they don't have enough funds to have an institution representing them. Local NGOs specialised on the land, not the sea, and we had a training for them a few years ago so they could say something about the sea. Fishermen are well organised, they are historical users and have too much to put to a debate. Yet, you hear nothing about tourism, and it's half of the Blue Economy, and they are not organised for that.

Andrea: We need resources to reinforce institutions. We need targeted selection processes and targeted training to build a capacity building. When we have institutional capacity in place, we need better rules to assign funds. It is important that pre-conditions for assigned rules are made clear and there is a need for a proper monitoring of performance and effectiveness of the use of the funds, which can be obtained in different ways, depending on conditions and specific situations.

Alice: One of the limiting factors is that we tend to think in a sectoral approach and we are in a silos. One of the solutions would be to set up a stage for cross-sectoral dialogue, to increase policy coherence and to develop the culture of cross-sectoral dialogue, especially when talking about MSP.

Andrea: And institutional capacity to manage cross-sectoral dialogue. Bottom-up. If it´s managed, you can be sure that the result of a dialogue will become an action, program plan.

2.5 Conclusion part 2.

Chantal Menard

Part 3. SCIENCE-INDUSTRY PARTNERSHIPS

(Recapture of Days 1 and 2 Presentation of Day 3)

Chantal Menard

Cintia: Day 2 was rich. A lot of stakeholder information on how to manage. Also, as a scientist, how can we convail knowledge in the best way. My take home message was a dialogue we have to provide for policy-makers. As a young generation of scientists, we are quite open to providing such knowledge.

Jerneja: I enjoyed different case studies and the fact that we engaged different factors that impact MSP and how to break them down, especially with the polls when we tried to identify the enablers. It was important, but also confusing to see how the governance system in the Mediterranean is. There are huge differences in the region, in our access to knowledge and to policy-makers, and it's a complex topic.

Report on Room 1:
Dania: Important point on the role of women, and we are still not there on a 100% force. We need to train young scientists and planners to be in that interface. Solution is clear - let's train the young generation where they could go out of their thematic expertise they are in and to be put in the context where they could be trained into the missing part of their role. Lots of discussions were about the communication barriers - the language of science is difficult. Researchers were not comfortable talking about uncertainty. There is no agreement between scientists toward one indication for policy-makers. That makes the decision-maker´s side to not take science as a main input. Need for more coordination between scientists.

Report on Room 2:
Barbara: The short-term request

3.1 The Blue Acceleration: The trajectory of human expansion into the ocean

Speaker: Jean-Baptiste Jouffray , Stockholm Resilience Centre, Stockholm University, Sweden	**Keywords:** great acceleration, blue acceleration, anthropocene	**PPT presentation link**

Topic(s): Speed scale connectivity, The Blue acceleration, The anthropocene ocean - limits and impacts	***1 min estimated reading time***	**Video link Jean-Baptiste Jouffray´s presentation**

Key messages/summary

Ocean shown as a unit: 1942, Sphilhaus projection: unique perspective as Ocean and helps understand that everything that goes into the Ocean stays there.

Ocean Globally:
Anthropocene defined by scale, speed and connectivity. Last 50 years, exponential growth of how human activity has a result of the environment. Three fundamental needs for humanity to which the Ocean is deeply linked:
1) Food
2) Material
3) Space

UNCLOS was signed as the Ocean use was very different as it is now. There has been a sharp acceleration since early 2000 (on shipping, wind farms etc).

Three dimensions to be raised when dealing with Blue acceleration:

- Limits: example of the sea-food production, picked in 1996 and has been declining now, and compensated by aquaculture rise. Regarding gas and liquid, the depth of the drilling has increased with technology and less availability.
- Impacts: negative impacts (decrease of fish stokes, increasing noise disrupting the sauna). The Med is increasingly impacted and very little of the ocean remains untouched.
- Equity: who is not benefiting from the Ocean? Notions of ocean grabbing for instance, papers are now exploring this, calling for building "Blue Economy Capacity" which encompasses social equity, environmental sustainability and economic viability (Cisneros Montemayor et al. 2021, Nature). Blue Justice: looking back at traditional, small scale and artisanal users of the ocean.

NB : Constitution of the Sea not updated but it's being reviewed and negotiated so the changes in regulation are very slow; The pace of the policy and the pace of activity are following two contrary paces.

3.2 Transnational corporations in the ocean economy

Speaker: Jean-Baptiste Jouffray , Stockholm Resilience Centre, Stockholm University, Sweden	**Keywords:** Ocean 100, scientists, corporations, interdisciplinary and transdisciplinary research, collaboration	**PPT presentation link**

Topic(s): Scientists as change makers, Interdisciplinary and transdisciplinary research,	***1 min estimated reading time***	**Video link Jean-Baptiste Jouffray´s presentation**

Key messages/summary

Literature -> transnational cooperation has become a feature. Across 8 core Ocean Industries. Ocean economy is highly consolidated, the 10 largest companies generate 58% of the Ocean based industries.
Looking at who they are: dominated by offshore oil and gas companies, showing a discrepancy between North AM/EU/China (if we exclude the gas industry), bringing the topic of equity. Given the influence and impact of corporations, how can they or rather, the scientists help them save the Ocean?
Scientists can take a significant role in changing things. According to Robert Kates approach on sustainability science: where science would be problem driven and solution orientated. Here are the principles for knowledge co-production in sustainability:

- Context based (replace the process in a particular context, place, issue).
- Pluralistic (recognize the multiple ways of knowing and doing).
- Goal-oriented (articulate clearly defined, shared and meaningful goals related to a challenge).
- Interactive (allow for ongoing learning among actors, active engagement and frequent interactions).

The need for Transdisciplinary research means collaborating, which represents both an opportunity (to help make sense of complex ocean space, gather talents and skills) but also challenges (disciplinary boundaries, cultural differences, risk of failure if it's only a greenwashing opportunity for some companies).

Key recommendation for engaging with science-industry collaboration:

1) Foundation: establish relationships, build interdisciplinary teams, and develop shared goals.
2) Agenda: clarify and formalise responsibilities, ensure regular and transparent communication and engagement, be mindful of scientific integrity.
3) Progress and adapt: reflexivity, team resilience, be open to opportunities, accept setbacks, seek to learn.
4) Recognition that project takes commitment to achieve the outcome.

NB: Keep clear eyes on the outcomes you expect of the collaboration and the deliverables, in order to avoid getting lost in the process and keep scientific integrity.

3.3 Working with the world's ten largest seafood companies towards ocean stewardship

Speaker: Jean-Baptiste Jouffray , Stockholm Resilience Centre, Stockholm University, Sweden	**Keywords:** science-business inititative, Ocean stewardship, SeaBOS, dialogue	**PPT presentation link**
Topic(s): Transnational corporations as "Keystones actors" in Marine Ecosystems	***1 min estimated reading time***	**Video link Jean-Baptiste Jouffray´s presentation**

Key messages/summary

Scientific process: transnational corporations as "Keystones actors" in Marine Ecosystems, identify how much the top 10 companies produce? Results: 12 of companies handle more than 500 species and their subsidiaries also operate. Speculative conclusion: can we try to engage with the companies, because they are so big, could we use their influence for the best. If they were to do things better, potentially they could create a transition towards improved management in marine living resources and ecosystem?

Engage with Companies and Co-design: Use these relationships and bring on bilateral meetings: having conversations to see if companies would be interested to bring in some executives. This led to:

- First Keystone Dialogue: Nov. 2016; SDG 14 -> 2 largest seafood companies, 2 largest tuna companies, 2 largest salmon companies, 2 largest aquafeed manufacturers. Results: joint statement of the CEO to commit their companies to improve transparency, engage science-based effort, IUU fishing, fight of slavery and labour exploitation, use of plastics, greenhouse gas emission etc. They committed and established a new imitative: SeaBOS. It brings 3 big markets, 3 continents, a unique concept.
- Other dialogues: *Soneva dialogue, Stockholm dialogue, Amersfort dialogue etc.* Novelty : 2 new companies joined. Keystone dialogues were not enough, go beyond CEO level, and new meetings were organized.
- SeaBOS has become institutionalized - Ten of the world's largest seafood companies.
- 5th Keystone dialogue meant a commitment to a time bound goal by 2021: IUU out of supply chains, representing a concrete commitment.

Conclusion: It still is an experiment, it might fail or succeed. They will keep monitoring it to be continued.

NB:

- Key enablers: shock (2015) - forced labour and modern slavery (thai industry). Other enablers are the networks and the work done with National connectors: through ambassadors, journalists, building the connections; UN Ocean conference: where

companies take responsibilities and engagements. The more they go public, the more they'll be held accountable.
- Complexity of the supply chain in a hyper connected world, it makes it harder. Specifically, if we ask the companies: hard to know which one of the suppliers is doing what. Traceability before Human rights : the enabler to get there.

Q&A

Q: More dialogue as a solution?

A: Policy makers also add measures to promote change in the company's practices. The challenge is the co-evolution, companies push their regulatory space as much as possible, so there is often co-evolution in this sense that policies take time. But it is a crucial part. A key example could be the EU green deal, encompassing EU taxonomy (economy of taxes, bold and transformative way of thinking which could define what banks could consider as sustainable investments).
Scientists: On advocacy, it's one way for scientists to engage and have an impact, if they wish to. There is a need for scientists to present facts and participate in the effort, to be co-designers. It's also crucial because scientists don't have all the answers, there is so much outside of the academic field, there is a field/industry knowledge.

Q: What is the level of influence of the scientists in the co-design model? (especially in collaboration to industries where they are profit oriented).

A: In terms of influence, scientists can play an important role, e.g. companies committed to ambitious goals.
Limits: **implementing these goals**, seeing as it depends from the company governance, and there are **no sanction mechanisms.** Scientists are just one part of the equation, hence the need for co-designs with policy-makers, investors etc. The aim is to steer companies to reach these goals.

Q: So, how to monitor the progress and set up strategies to get there?

A: Science for SeaBos: risk maps, challenges, creating science that will be useful for the initiatives.
Science of Seabos: learning about the initiatives, where interdisciplinary teams are useful. So, working with accountant scholars, to quantify if the small goals are reached, so there is a parallel research part. Now, they are hoping to have an annual report to be published.

Q: Key enablers to bring the parties to the table and their commitment to the process and where did the funding come from?

A: Funding: Answer to grant proposal to obtain philanthropic fundings. Science by philanthropist (3 years funding). Now, SeaBOS is being institutionalised so companies pay membership fees.

Q: Are the commitments feasible and efficient?

A: Yes, they are. The compromise so far, has been on the time dimension effect. Now, they are monitoring the process through a pilot study. So far, it works, but getting companies to commit to time bound goals it was harder. If the project fails by 2021, then there will be a change in the dynamics, but this would also be an interesting result. Keeping in mind that the time issue is sensitive for fish stocks.

Q: Championing sustainability?

A: Pushing companies and stimulating companies to be even more so open on traceability (example of Thai Union Company), engaged after the forced labour scandal (2015). A good driver in the industry is reputational, market pressure is also important (EU put some restrictive measures – "yellow card"). Need to see companies as a network, financiers (in relation to climate and other environmental issues) what transparency and reduction of environmental impact for instance. So, an emerging trend is "sustainability liked loans" (interest rates are linked to performance in sustainability and environmental protection), which is an efficient financial incentive.

Especially in Seafood (a renewable resource, meaning that it can be a sustainable production and business) so SeaBOS didn't make the companies discover the state of the oceans, they were aware of the challenges. There is also a genuine will to make things improve as they are aware that they won't be able to survive in the years to come if they don't change practices.

3.4 Creating the right incentives to enable ocean sustainability

Speaker: Jean-Baptiste Jouffray , Stockholm Resilience Centre, Stockholm University, Sweden	**Keywords:** coastal management	**PPT presentation link**
Topic(s):	***0.5 min estimated reading time***	**Video link Jean-Baptiste Jouffray´s presentation**

Key messages/summary

Impacts of Coastal cities in Marine functional connectivity
Coastal management often means barriers for the free movement of species, food, reproduction. Coastal habitat is also being lost, so need to promote the connectivity of habitat. As the sea level will rise, there is a need to prepare for those risks. Soft solution for these challenges: Offer a competition for innovative ideas and ideas pushing boundaries, to ask for an adaptive coastal protection, nature-based solution, answer to the storm and floating strategy. Competition designed for engineers, marine biologists, artists etc in order to be innovative. Anonymous process to be more inclusive. Role of an advisory board:

to present an evidence-based answer. The winner was an inclusive and transdisciplinary team for an innovative project.
Process of a participatory assembly and how to get to an agreement: Objectives were clear from the beginning, the jury had equal vote (equity). Learning process to work with different backgrounds. The aim is for the municipalities to influence each other and for a national strategy to be adopted.

3.5 Barriers to implementing Marine Functional Connectivity (MFC) studies to national/international policies

Speakers: Maria Beger, Audrey Darnaude, Rigers Bakiu, COST Action, Sea-Unicorn Project	**Keywords:** MFC, barriers, stakeholders, policy-makers, marine managers, Vejle harbour	**PPT presentation link**
Topic(s): Questionnaire results, Increasing stakeholder awareness on MFC: the successful case study of Vejle harbour, Barriers to implementing MFC studies to policy and management	***8 min estimated reading time***	**Video link SEA-UNICORN´s presentation**

Key messages/summary

Rigers Bakiu presented the results of the Questionnaire on manager and policy-makers' needs for MFC. There were 5 questions:

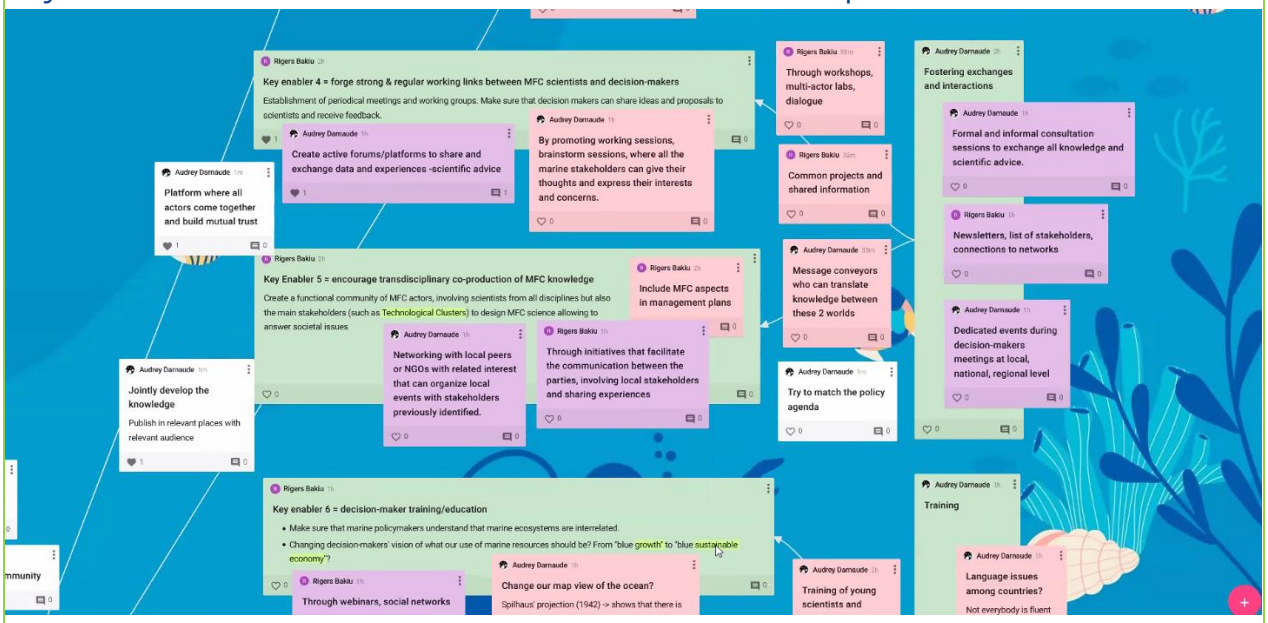
1. About marine managers - what are their specific knowledge needs regarding MFC and what are the specific ways in which MFC knowledge can inform them?
2. About policy-makers - what are their specific knowledge needs regarding MFC and what are the specific ways in which MFC knowledge can inform them?
3. How to improve knowledge exchange between MFC scientists and decision-makers?
4. How to optimise dissemination of MFC research findings across stakeholder communities?
5. What are the main barriers to implementing MFC studies to national/international policies?

24 answers were received. High representation of scientists (46%), others are corresponding to managers (25%) and policy/managers (25%), and policy-makers (4%).

Cintia Organo Quintana (trainee) was invited by SEA-UNICORN to step in and give a short presentation of a case study that illustrates barriers to implementing MFC studies to policy. Her successful case study addressed increasing stakeholder awareness on MFC in the Vejle harbour (Denmark). She was invited as a scientist to participate in the project. Vejle is a coastal city and such towns, to put them in the context of MFC, have problems because they use artificial structures that work as barriers for the species. The species need free movement to reproduce and to feed. Barriers can be, eg. break waters that interfere with movement of food and reproduction. Denmark has a problem of losses of key coastal habitats. We have no connectivity of species if we don't have habitats and that is the case of Vejle (urbanisation). The sea level in Vejle will raise 25 cm by 2050 and the municipality has to come up with some solutions for coastal defence (restore nature, preserve biodiversity). But the municipality didn't want to have a hard, traditional structure as a defense (build a concrete wall or a dyke). They wanted to have a soft solution - how can we merge everything together? There was a competition for innovative ideas/project proposals. The ideas needed to address adaptive coastal protection, nature-based solutions, another perspective of water, nature above and under, tourism and flooding strategies and criteria and resilient storm flooding protection. Architects, engineers, marine biologists and artists could compete and the emphasis was to work in a team because of the complexity of tasks. Project proposals were anonymous (inclusivity, give chances to small businesses). The jury came from having a fixed mindset and being reluctant to take more innovative ideas to have a growth in mindset where they were bearing to choose between innovative ideas, that included nature and fulfilled all tasks. The first prize winner of the competition was the group that used a team of architects, engineers and marine biologist. The winning ideas will try to transform the current situation of the Vejle harbour to the harbour where there is not a lot of concrete, the water quality is improved, reefs are brought back,... These ideas will be tested and implemented and used for coastal protection in Vejle fjord. At the end of Cintia´s presentation, all participants voted to identify the key enablers of the case study, and those were stakeholder engagement, participatory approaches, open dialogue.

Audrey Darnaude started the general discussion on barriers to implementing MFC studies to policy and management. The discussion is built on the trainee's answers on questions 3 and 5 (see above) from the Questionnaire and try to combine the answers to see what are the main

ways to allow MFC studies to inform national and international policies.



Audrey prepared the Padlet for this part of the interactive session. She compiled all the answers and added them to the online tool. Audrey invited the trainees to vote on the barriers, to comment on the mentioned barriers or to either add new barriers. Maria started from the barriers from the scientists' side.

Jean-Baptiste stepped in to add his perspective of two dimensions of this exercise. One is that the academic system today is not tailored for scientists that engage with policy-makers (how you´re evaluated in terms of publications and how much you publish). It is not taken into consideration the amount of hours you spend to make an impact. From his point of view, the barriers for scientists would be: what kind of recognition you get when you're engaged in those processes (because they´re time-consuming and it is a long-term commitment). Even within your institution and among peers or colleagues you don't get that recognition, certainly not when it comes to evaluation metrics today. Maria agreed and said it depends on the country you are in.

Tosca said she reviewed a book for high school, the section on climate change and she updated it with the latest IPCC reports and the editor removed those updates, because the author of the book, which was a Senior Professor at the University would not agree with what was written on IPCC reports and the book went to print with old information. This is not a problem for science, it is a problem for society. How do we translate scientific information to the rest of society? How do we make our voice heard, the science heard? We speak to policy-makers and with society - do they have the tools to understand what we speak about? And if they don't learn this at school, where do they learn the information about ecology, climate,...?

Maria said that she read that scientists don't like to make certain statements, they always like to generalise their statement and there is always a debate within science. Policy-makers need to be taught that this is how it works and this is what we can do about it.

Peter reminded everyone of Chris´s presentation from Day 1 - if you want to influence science, you don't use a book anymore. You use Twitter and other social media. This allows to bypass the editorial control to a degree and this blurs this barrier again - science and advocacy - because you're advocating for the certainty that may not be agreed with the author of the book. To increase your impact and possibilities to get your view out there, engaging with available tools (Jean-Baptiste, Chris and Peter will hopefully lead somethin on those tools in Venice), it is important to understand what tools are available for us now to avoid the

censoring of the new information.
Maria thinks that, if you use social media, you´re printing to a converted, to your network which is, by definition, biased towards people who largely share your opinion. How can we overcome the barrier of social networks being biased?
Peter asked who does she think would buy the book?
Maria said that if it's a book that is used in high schools, it would go to schools and many kids, regardless of their background, would be exposed to it, so how do we reach that sort of audience?
Peter said there are a lot of ways and means to access different audiences and it is all dependent whether you're willing to be criticised or whether you´re willing to play safe. There are various ongoing debates on Twitter, numerous groups where you can access. Even if it is a high school group, kids don't pick a book. All this information comes from social media,YOuTube lectures,... There are many ways and means to access an audience beyond what you would normally access. It's a case of risk and reward.
Tosca added that maybe we should not be communicating uncertainty, but we should communicate the robust inferences that we can make from lots of knowledge that we already have. We should focus on what we know. IPCC shifted the way that they communicate (talking about uncertainty, probability). We should focus on what we know, rather than on what we don't know.
Audrey introduced the solutions/key enablers to the barrier mentioned in the previous part and that would be a more effective science communication (simplify concepts and choose better communication tools and the way of communication).
Barbara had a thought on how to achieve more effective science-policy communication. In her experience, it is very important to have a platform where different actors come together and there has to be the space for trust building and understanding of each other. Scientists may not be aware how the policy works and what policy-makers need to know and where they need to step in and the other way around. Having that communication and exchange platform is really important and it can be a bridge thing to bring things together. She thinks it´s not science should communicate to policy, but rather to jointly develop the necessary knowledge and prepare it in a way that it is taken up and it can be published somewhere where it can really reach the audience.
Maria mentioned that the key enabler is to build trust and to have mutual respect, which enables to develop science-policy interface. It takes time and a lot of investments from both sides, but everyone gets the benefit out of it.
Rigers mentioned his experience when he was preparing the NCP report (linked to ICPP reports and climate change and fisheries sector) in collaboration with other colleagues and the report reached 100 pages. Policy-makers were interested just in recommendations that took just 2 pages of report. Their interest is in a different place from scientists point of thinking. Scientists, experts and managers think they should provide a lot of evidence and scientific information to convince policy-makers, but no. They are mostly interested in policy agenda and they need just recommendations.
Maria said that there is a role of translators that could go between scientists and policy-makers and that they can develop context in a sensible way.
Rigers added that FAO was the translator in his case and that they arrange everything to make things more comprehensive to policy-makers.
Audrey commented on the Padlet and key enabler number 8: MFC knowledge should be presented alongside new ways to measure prosperity and well-being. It was written that this key enabler might require MFC research scientists to collaborate with economists and jurists

and she was wondering if someone had a comment on this key enabler.
Tosca stepped in saying she put that enabler, but Marta Pascual might have better information on the system of environmental economic accounting. She added it is a new way of accounting the performance of countries, that is not only taking into account what is done by GDP, but also how the natural resources are used and if natural capital is destroyed while you´re doing things. So, you have a final combined matrix, this index that has both how much money has been made and if natural capital is still there or it is eroded. When she mentioned the jurists, she read a book by Ugo Mattei about western jurisdictions that have developed since 1600/1700 with the shipping companies from Northern Europe and they have influenced how the jurisdictions of our countries have been written. And in our jurisdiction often a private property is more protected by the law than the public good or the commons. She thinks that this jurisdiction shapes the perception on how we can use nature and the author himself advocates for having a change in jurisdictions to be able to take into account the ecology.
Maria said that the Padlet will stay open for trainees to engage later on if they want and that whoever wants to join the SEA-UNICORN project, can email Audrey or Maria for participation.

Q&A

Q: (Tosca) Was the Mayor of the City of Vejle obliged to implement the decision that was taken by the small group of people?

A: (Cintia) We wanted a soft solution so it helped a lot to the jury to be more open to different solutions. Every member of the jury had equal votes. Along the process we were neutral, and at the end they asked us to choose three favourite projects. But with a lot of talk and questions, we managed to shift the mind of the jury and they were very open. It was a learning process for me to work with so many different backgrounds. The good thing in Denmark is that all the other municipalities will copy and apply the template that this municipality did and it will become something national at some point.

Q: (Chantal) What was your biggest challenge and how did you overcome it?

A: (Cintia) The biggest challenge was the practical part where municipality members were asking how to implement the ideas, is there enough knowledge to support it and it goes in fine line with uncertainty - how to address it? We had some evidence, but some things go through transparency and we have to test it. It worked very well in that process.

Questions from chat:

Q: (Lucia) Very interesting case, and I wonder how much does the blind submission help in the quality of proposal as many times everything starts from politics and not towards common goals, so also groups that make proposals are chosen from the beginning without transparency?
A: (Cintia) Most of the proposals were excellent quality, some were disqualified since they did not meet the criteria asked for. So, there was a quality check.

Q: (Hrvoje) How can we work with SeaBOS to lobby/fight against one-use-plastic?
A: (Jean-Baptiste) Co-producing the knowledge.

References

Vejle project competition: (in Danish)
https://vejle.citizenlab.co/da-DK/projects/idekonkurrencen-kanten

Österblom et al. 2018. ***Can science and business work together to save the ocean?*** **Environmental science journal for teens.**
https://sciencejournalforkids.org/wp-content/uploads/2018/12/Business_article.pdf

CONCLUSIONS OF THE ONLINE TRAINING COURSE

Andrea Barbanti, Dania Abdul Malak

Andrea Barbanti:

- Raising awareness, how important MSP can be when properly developed and implemented. Integrating sectors and communities as well as policies towards sustainable economy and to operationalise EBM (the larger community might not have this in mind)

- Honesty, trust and equity which are so close to sustainability science, policy and society process.

Dania:

- What are the needs and challenges, and setting rules, driving forces, best practices to be set to work more in harmony with nature.
- Question of vulnerability: socio-ecological, local livelihoods, gender perspective, equity of who might benefit and not.
- Important to point out the users and how to engage them, specifically in the Mediterranean.
- Try to manage that the future professional would integrate nature in the heart of their actions.

RESULTS FROM SATISFACTION SURVEY

link: https://backend.interreg-med.eu/fileadmin/user_upload/Sites/Biodiversity_Protection/horizontal_project/6-BPC_deliverables/WP4_Transferring/4-2-3_Interdisciplinary_Mediterranean_Ecosystem-Based_Management_MSP_summer_school/Presentations_OnlineCourse_March2021/EBM_MSP_training_course_evaluation_report_March2021.pdf

VIDEOS

- **Video of the full preparatory session, 17th September 2020 :** https://youtu.be/pUNhSEuNsPM
- **List of videos by sessions:** https://youtube.com/playlist?list=PLTXz-jRvdNAyS2ETntvWdfLMk8T7dcE6l

SOCIAL MEDIA POSTING

Mediterranean Biodiversity Protection Community @ME... · 24 mars

En réponse à @MEDCommunity3_2

✍️And now, time to split the group! Trainees are invited to the breakout rooms to reflect on key enablers for successful #SciencePolicySociety Interactions. There've been a great and fruitful 3 sessions sharing ideas! #BiodiversityProtection **#EBMtraining** #SciencePolicySociety

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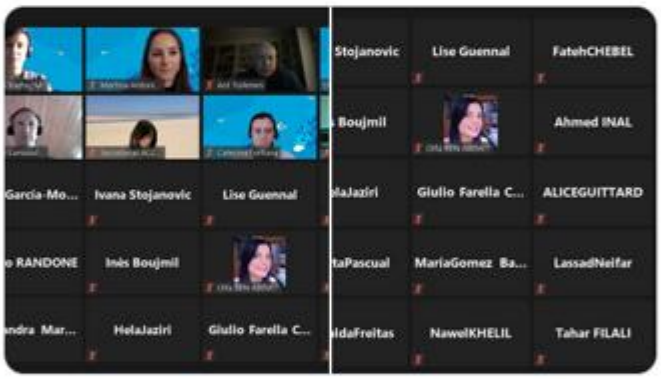
Mediterranean Biodiversity Protection Community @ME... · 24 mars

👏 A BIG THANK YOU to trainers and attendees that enrich the conversation and challenge the audience! Next & last **#EBMtraining** day is Friday 26, stay tuned to learn more about #SciencePolicySociety Interactions in #ecosystem-based marine resources management and planning. #MBPC



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ETC-UMA @ETC_UMA · 24 mars

#ETC_UMA director @abdul_dania co-organizer and promoter of EBM approaches in Marine Spatial Planning #BetterTogether #MedBiodiversityProtection **#EBMtraining**👉bit.ly/3rfToh8

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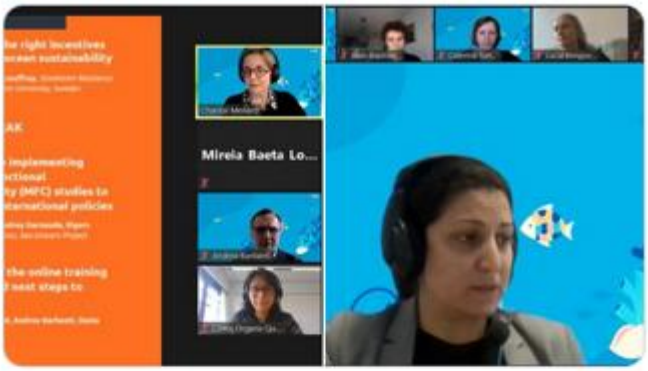
Mediterranean Biodiversity Protection Community @ME... · 26 mars

We are in our 3rd (& last) day of Science-Policy-Society interactions in #EBM Resources management & planning" training course. Welcome back to our trainees and incredible speakers ! Today talking about "SCIENCE-INDUSTRY PARTNERSHIPS"
#BiodiversityProtection #EBMtraining



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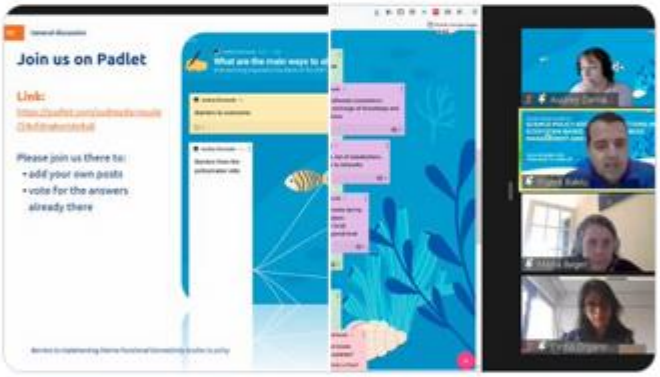
Mediterranean Biodiversity Protection Community @ME... · 26 mars

En réponse à @MEDCommunity3_2

With @SeaUnicorn2020 we discover a participative tool that has served to discuss about "Barriers to implementing Marine Functional Connectivity (MFC) studies to national/international policies" during the training about SCIENCE-INDUSTRY PARTNERSHIPS. #EMBTraining #MBPC



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Mediterranean Biodiversity Protection Community @ME... · 26 mars

"All good things must come to an end", and we finished the #EBMtraining with last speeches from A. Barbanti, @abdul_dania & P.Mackelworth who underlined the importance of sharing knowledge within scientists & other disciplines to go further to achieve a good legistalation.

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