

Recommendations for Bridging the Science-Practice-Policy Gap in biodiversity protection in the Mediterranean

The MED Biodiversity Protection Community featured by PANACeA



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Executive summary

This report summarizes the results of the discussions held in the framework of the knowledge sharing event **“Bridging Science-Practice-Policy Gaps for Biodiversity Protection in the Mediterranean”** of the MED Biodiversity Protection Community, organised by the PANACeA project in Barcelona on October 24th – 25th, 2017.

The event focused on linking the needs of regional practitioners to researchers and facilitating evidence-based policy making in support of biodiversity conservation, addressing three crosscutting issues:

- **Emergent, transboundary biodiversity protection challenges** in Protected Areas, with a focus on **climate change** and **marine litter**.
- **Sustainable resource management**, with a focus on fisheries.
- **Integrated ecosystem monitoring and management**, focusing on freshwater, coastal, and marine ecosystems.

The event brought together a broad network of experts working on biodiversity conservation from across the Mediterranean, who were invited to (1) present past and current initiatives gathering scientific knowledge around the above cross-cutting issues and identify gaps in research data that may hinder evidence-based policymaking; (2) introduce scientific and technological innovations being addressed by projects undertaken within the MED Biodiversity Community; and (3) highlight effective strategies and tools currently helping to close the Science-Practice-Policy gaps and to foster a debate geared towards advancing solutions to this end, in support of biodiversity management and protection in Protected Areas and beyond.

The initiatives presented, reflections contributed and discussions held during the event, as well as its associated conclusions, lead to a number of recommendations for “Bridging the Science-Practice-Policy gaps in biodiversity protection in the Mediterranean”. Scientific evidence, stakeholder engagement, participatory decision-making and co-responsibility could be summed up to be the key words that resonated loudly as the principles that should guide any actions geared at bridging Science-Practice-Policy gaps in support of biodiversity protection in the Mediterranean.

The conclusions and recommendations summed up in this report will be taken into consideration and built into the upcoming Action Plan 2017-2019 that will guide the work of the MED Biodiversity Protection Community through its first period of development.

The MED Biodiversity Protection Community's upcoming Knowledge Sharing & Community Building event in Montenegro (May 2018) will build on these conclusions to further guide and advance the joint efforts of the community, in support of biodiversity conservation in the Mediterranean. Scientists, practitioners and policy makers involved in biodiversity monitoring, management and conservation are invited to participate in this meeting, which will focus on strengthening the community and progressing on the working groups' objectives.

KEY MESSAGES

MED Biodiversity Protection Community

First Knowledge Sharing Event

Barcelona, October 24th-25th 2017

Scientific evidence | Stakeholder engagement | Participatory decision-making | Co-responsibility

- Protected Areas are strategic tools that can contribute to increasing the resilience of local ecosystems against the impact of global environmental challenges, acting as living laboratories by providing grounds to test and demonstrate the effectiveness of management and conservation efforts. To ensure that protected areas in the Mediterranean play such a role, efforts to build a coherent regional network of Marine Protected Areas should be sustained, underpinning their ecological coherence and enhancing their management effectiveness. Representativeness, connectivity, adequacy and replicability are key success factors to consider and address.
- Networking, knowledge sharing and capacity-building initiatives are critical to developing a common language and understanding around the sustainable use and protection of biodiversity amongst stakeholders in protected areas. Such initiatives need to be supported and sustained.
- Effective clearing mechanisms are required to assign relevance, build synergies, integrate methodologies, and channel results of scientific research to practitioners and policy makers working on biodiversity protection. PANACeA could be an exemplar to guide future action in this direction.

- While the existing institutional and policy environmental frameworks support top-down action in support of biodiversity conservation, bottom-up approaches are also required to bring all relevant actors together at a relevant scale. Co-management is a powerful tool that can contribute to bridging Science-Practice-Policy gaps by aligning action of scientists, practitioners, users and policy makers at such a scale, fostering long-term, multi-stakeholder collaboration and the effective implementation of win-win solutions.
- Sound biodiversity management and policies need to be guided by sound scientific evidence. Although significant progress has been achieved on land to gather such evidence, significant data gaps are still preventing the definition and implementation of effective measures in support of biodiversity protection at sea, addressing land-sea interactions. Bridging Science-Practice-Policy gaps requires a clear vision on current data needs, setting priorities regarding the policy and management frameworks that could benefit from filling those needs and the definition of concrete, coordination actions amongst research projects and initiatives to address them.
- Coordinated compilation of data generated through ongoing scientific efforts (for example, through PANACeA's Interreg MED "Biodiversity Protection Knowledge Platform") and effective collaboration with existing data aggregation initiatives should be encouraged and pursued.

The First Knowledge Sharing Event

During the kick-off meeting of the MED Biodiversity Protection Community in Marseille (March 15th -16th, 2017), participating public administrations, research institutions and conservationists in the region stressed the need to effectively link the efforts of applied research on biodiversity monitoring and protection with management practices in protected areas - wetlands, rivers and coastal areas alike - and together influence Policy Making at various levels to achieve more effective biodiversity conservation and more coordinated and integrated management of ecosystems.

Based on this need, PANACeA decided to devote its first “Knowledge Sharing Event” in Barcelona towards linking the needs of regional practitioners to researchers and to facilitate evidence-based policy making.

The **specific objectives** of the event were the following:

- To present **past and current initiatives** gathering scientific knowledge around the above cross-cutting issues and identify **gaps** in research data that may hinder evidence-based policymaking.
- To introduce scientific and technological innovations being addressed by projects undertaken within the **MED Biodiversity Community**.
- To highlight effective **strategies** and **tools** currently helping to close the Science-Practice-Policy gaps and to foster a debate geared towards advancing solutions to this end, in support of biodiversity management and protection in Protected Areas and beyond.

A set of **introductory presentations** and **three thematic panels** were envisioned to address these objectives:

- After the institutional opening of the event, the introductory presentations served to set a **framework reference** for discussion, addressing the importance of biodiversity as a precondition for the provision of ecosystem services in the Mediterranean basin, as well as the urgent need for its effective protection.
- **Panel 1** then addressed “Emergent and transboundary challenges to Protected Areas: Addressing the effects of climate change and marine litter on biodiversity through evidence-based management practices and policies”.
- **Panel 2** focused on “Sustainable use of natural resources in Protected Areas: Artisanal and small-scale fisheries”.
- **Panel 3** focused on “Integrated ecosystem monitoring & management: Addressing key challenges for the Mediterranean”.

The event brought together a broad network of experts working on biodiversity conservation from across the **Mediterranean**. In order to integrate as many visions as possible into the debate and foster a productive dialogue, participant guest speakers were assigned different roles, in support of a dynamic discussion:

- **Panellists:** Panellists were invited to contribute with their knowledge and opinions to the key topics addressed in each panel, delivering a presentation on specific, related initiatives or experiences that spoke of the connections between science, practice and policy in biodiversity conservation in protected areas.
- **Guest challengers:** Guest Challengers were invited to facilitate the transition towards a dynamic debate, by reflecting on the topics of discussion from their own perspective and experience.

Each panel was chaired by an authorized representative of **PANACeA's Advisory Board**, who contributed by setting the background and the stage for discussions, as well as by facilitating the debate, engaging not only guest speakers and challengers, but all participants at-the event.

The full and detailed Agenda of the event including access to the presentations is available [here](#).

Summary of contributions

Institutional Opening and Framing Panel



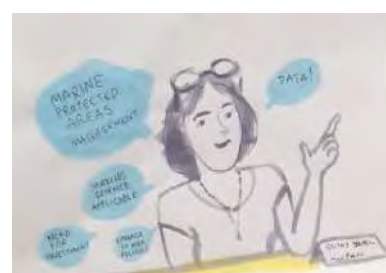
The proceedings were opened by **Xavier Tiana**, **Secretary General of MedCities**. Mr Tiana welcomed all participants and highlighted the need for cities to address the urgent challenge of biodiversity protection as direct beneficiaries of key biodiversity services, such as the availability of clean air or clean water, amongst many others. Mr Tiana argued that while cities are often the source of important threats to biodiversity, they lack the financial

resources to address and properly contribute to manage and mitigate such threats. He highlighted the role of MedCities as an organization that is working through its network to engage Mediterranean cities in the articulation of joint strategies and responses in support of sustainability and biodiversity conservation.

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Mr Antonio Farrero, Coordinator of Infrastructures of **Barcelona Metropolitan Area**, took the floor to further reinforce the need for action, outlining a practical example of how the city of Barcelona and its surrounding municipalities have tackled the conservation of biodiversity through a multi-step, integrated, territorial strategy covering a range of natural parks and designated natural areas including different ecosystems (beaches, dunes, rivers, mountains, etc.), species and ecological processes.

Ms Dania Abdul Malak, Director of ETC-UMA and PANACeA's project coordinator followed by building on the importance of biodiversity as a precondition for the provision of ecosystem services in the Mediterranean basin, as well as the urgent need for its protection. Ms Abdul Malak referred to the Mediterranean basin as a unique biodiversity hotspot with high diversity and endemism of flora and fauna, which is subject to an alarming increase in human negative impacts. She argued that increasing pressures (waste disposal, introduction of alien species, overfishing, etc.) connected to the alarming increase in global threats - such as climate change and marine pollution - are emerging, and their cumulative impacts are reducing the overall resilience of Mediterranean ecosystems. Ms Abdul Malak highlighted the need for intervention within and beyond designated Protected Areas (PAs), identifying transboundary priority areas and advancing towards effective biodiversity management in PAs using an ecosystem-based approach. According to Ms Abdul Malak, Project PANACeA is a necessary response to these challenges, as a collaborative effort amongst key regional institutions geared at addressing multiple pressures using integrated monitoring protocols and transferable management tools.



Ms Ruthy Yahel, member of the Mediterranean Network of Protected Area Managers - **MedPAN Scientific Committee** introduced the key role of scientific evidence in guiding better management of Protected Areas and the need to bridge current science-practice-policy gaps, in support of biodiversity conservation. Ms Yahel further explained how MedPAN's network of Marine Protected Areas (MPA) Managers in the Mediterranean has influenced relevant policy processes at regional level, based on scientific evidence. Every 4 years, MedPAN undertakes a region-wide assessment on

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the status of Mediterranean MPAs, addressing progress towards Aichi Targets, analysing the ecological coherence of Mediterranean MPAs (representativeness, connectivity, adequacy and replicability) and their management status (governance, monitoring, surveillance, etc.). In 2016, MedPAN's assessment came to conclude that while MPA designation had made considerable progress in recent years, the network of MPAs in the Mediterranean was not truly coherent ecologically as yet and sites were insufficiently managed, which prevented protection measures to be fully implemented. Through its Forum of MPAs in the Mediterranean, MedPAN brought together MPA managers to share data stemming from specific studies and surveys at MPA level and to discuss findings and common challenges. As a result, greater insight into current management challenges was gained (i.e. lack of permanent staff in the field, lack of adequate budget, need for systematic planning, lack of regulations and surveillance, etc.), and a shared action plan produced to tackle them. The proposed action plan was subsequently presented at the Conference of the Parties of the **Barcelona Convention**, leading to a formal, policy Roadmap for the development of a comprehensive, coherent network of well-managed MPAs to achieve Aichi Target 11 in the Mediterranean. Ms Yahel further highlighted the networking, sharing and capacity building dimensions of MedPAN as the key success factors that are contributing to shaping—and disseminating—better science-based management practices.



After this general introduction, **Julia Vera** (Travelecoology, event Facilitator), again highlighted the specific objectives of the event (as described in section 3 of this report) and the focus of each of the thematic panels, providing an overview of the agenda, its components and the expected deliverables. She then gave the floor to the chairs to launch the panels.

Panel 1: Emerging and transboundary challenges to Protected Areas: Addressing the effects of climate change and marine litter on biodiversity through evidence-based management practices and policies

Dr Ameer Abdulla (Associate Professor of Marine Biodiversity and Conservation Science at the University of Queensland and member of the World Commission on Protected Areas of IUCN), chaired Panel 1 and introduced the dynamics, objectives and participating experts of this panel, which sought to:

- Communicate and share experiences addressing emergent challenges to Protected Areas (PAs) through scientific research (specifically focusing on the effects of **Climate Change** and **Marine Litter** on biodiversity) and to identify research gaps hindering meaningful data analysis or decision-making.
- Highlight effective strategies, mechanisms and best practices currently helping to bridge **Science-Practice-Policy** gaps.
- Reflect on effective ways of transferring sound, evidence-based management practices from the site and national levels to a regional **Mediterranean** scale.



Ms Morgana Vighi (University of Barcelona) introduced **project MEDSEALITTER**, which is seeking to develop, test and implement efficient, easy to apply and cost-effective joint protocols to monitor and manage the impact of marine litter on biodiversity. Ms Vighi reflected on the threat that marine litter poses for living marine organisms, including fish, birds, cetaceans and turtles. Marine litter especially affects the Mediterranean Sea, as a biodiversity hotspot, she argued, but also as one of the most polluted seas worldwide. She pointed out that while various organizations in the Mediterranean are studying this global issue and its effects on biodiversity, common methodologies are still lacking. **Project MEDSEALITTER** is bringing together a network of representative Mediterranean MPAs and scientific organizations to jointly address the issue, working on two spatial scales (“local MPA scale” and “basin scale”); considering both “macro” and “micro” litter and with a double focus on both “floating” in the sea and “ingested” litter by studied marine species.

According to Ms Vighi, testing different protocols will allow to accurately define the settings needed to draft a consistent monitoring protocol on marine litter, taking into account spatial scale, type of monitoring (visual/automatic; ingestion analyses), seasonality, detectability, and platform/type of analyses used. A final standardized

common monitoring protocol will include 4 sub-protocols to monitor abundance and impact of:

- Macro-litter at large scale
- Macro-litter at Marine Protected Area (MPA) scale
- Micro-litter at large scale
- Micro-litter at MPA scale

The protocol will be tested in 2018 in pilot areas representative of the various Mediterranean ecological environments. The common methodology will be shared within a network of international MPAs and scientific organizations, contributing to the requirement of the marine and biodiversity legislative framework to reach a common policy on biodiversity protection.



Thomais Vlachogianni (MIO_ECSDE) presented **Project Act4Litter**. Ms Vlachogianni argued that marine litter has been acknowledged as a major threat in many Mediterranean MPAs, but MPA managers lack the tools and knowledge to effectively address the issue at their level and to prevent the problem from getting worse in the MPAs they manage. Based on this assessment, **project Act4Litter** is aiming to develop a comprehensive set of joint measures to preserve natural ecosystems from marine litter in Mediterranean Protected Areas, including the definition of MPA-specific action plans towards a good environmental status in the marine environment. Act4Litter is seeking to deliver on the following results:

- Strengthened networking of Mediterranean MPAs in defining a common framework of measures to combat marine litter.
- Improved management of Mediterranean MPAs through the definition of MPA-specific action plans towards good environmental status in the marine environment.
- Enhanced implementation of the relevant policy frameworks, such as the EU Marine Strategy Framework Directive, the Barcelona Convention Regional Plan for Marine Litter Management in the Mediterranean, etc.

The Project is expecting to contribute to bridging the Science, Practice and Policy by:

- Identifying potential measures to address marine litter issues in Mediterranean MPAs.
- Conducting feasibility assessment of measures through a decision-making tool.
- Conducting a (snapshot) monitoring on marine litter on beaches of Mediterranean MPAs and developing 10 MPA-specific management plans.
- Elaborating a joint governance scheme for improving marine litter management in Mediterranean MPAs.

The project will seek to transfer its results to other Mediterranean MPAs. The **ACT4LITTER** partners, particularly **MIO-ECSDE**, **MedPAN** and **SCP-RAC** are strategic partners that will continue to transfer and promote the uptake of the project results.

Mr Joaquim Garrabou (Institut de Ciències del Mar-CSIC) presented **project MPA-Adapt**, which is monitoring climate change impacts in MPAs in the Mediterranean, developing protocols to assess climate change vulnerability and building capacity amongst MPA managers to address the development of adaptation plans to enhance resilience to impacts, as well as raising awareness amongst local stakeholders. The project is contributing to monitor climate change impacts using specific sets of indicators:

- SST and thermal stratification (based on the IUCN guidelines).
- Mortality and bleaching events.
- Range shift of native T-sensitive and alien species.

Different protocols are being implemented to gather data on the above indicators:

- Temperature sensors are being set in MPAs.
- Fish censuses of species are being carried out.
- Interviews to gain-knowledge from local stakeholders.
- Mortality assessment.

Mr Garrabou explained that **Project MPA-Adapt** is seeking to assist Mediterranean MPAs to be more effective and develop comprehensive adaptive measures to enhance climate resilience of biodiversity as well as buffer coastal communities by:

- Developing collaborative and site-specific adaptation plans for the MPAs that enhance resilience to climate change impacts.

- Building capacity for effective management, assessing risks, and exploring potential actions and priorities needed to ensure the adaptability and the resilience of biodiversity and the local communities.
- Incorporating climate change vulnerability assessments and nature-based adaptation planning into their existing management framework.
- Providing guidance to MPA managers and local stakeholders to implement and test climate-change **assessment and adaptation** approaches.

MPA-Adapt is considered a step forward in the development of a network of “sentinel MPAs” on the global challenge of climate change. As an important component of the project, MPA managers will be specifically trained on issues connected to ecosystem vulnerability and adaptation to climate change. MPA site-specific adaptation plans to enhance resilience to climate change impacts will be developed following a multi-stakeholder engagement approach, articulated around awareness-raising events and stakeholder dialogues.

Ms Soledad Vivas (Government of Andalusia) shared the objectives and key lines of action of **Project Life Blue Natura**, a research project seeking to analyse the potential of “blue carbon sinks” (carbon that is sequestered and stored in mangroves, salt tidal marshes and seagrass meadows) as an effective tool that can contribute to mitigate the effects of climate change, opening up new opportunities for financing the conservation and restoration of natural habitats.

Ms Vivas pointed out that nearly 30% of the increase in atmospheric CO₂ is due to land use changes (e.g. deforestation), which sends back large amounts of carbon to the atmosphere and reduces the land (and the sea) natural carbon sink capacity. She argued that while reducing fossil fuel burning is fundamental, conserving and restoring natural habitats responsible for the formation of blue carbon sink is also key to mitigate and adapt to climate change. The region of **Andalusia** (Spain) has a significant extension of coastal marshes and seagrass meadows along the Atlantic and Mediterranean coasts. Building on the concept of “blue carbon sinks”, the project will contribute to:

- A better understanding of the potential of carbon sink habitats in Andalusia, as well as to its characterization, state of conservation and evolution in the coming decades.
- Identify potential sources of finance to support conservation projects and the restoration of habitats of blue carbon sinks in Andalusia, assisting the implementation of policies for mitigation and adaptation to climate change, and carbon offsetting markets.

The Government of Andalusia has recently passed a new law on climate change. This law will create the **Andalusian Emissions Offsetting System** and an associated **Projects Catalogue**, and for the first time will open the possibility of including Blue Carbon offsetting projects: conservation and restoration projects of blue carbon sink habitats like seagrass beds and tidal marshes. **Project Life Blue Natura** will play a critical role in the development of tools that allow the inclusion of “marine” offsetting projects in the future catalogue, since no tools for marine ecosystems exist as yet. These tools will be potentially transferable to other PAs, opening a window of opportunity for capitalizing the project results.



Moving the discussion from a scientific/technical perspective to a policy one, **Ms Camino Liqueste** (DG Environment, European Commission) took the floor and reflected on the main policy needs and knowledge gaps regarding biodiversity conservation in the Mediterranean from the perspective of the European Union (EU), structuring her contribution around three key topics:

- The EU Marine Strategy, as outlined in the EU Marine Strategy Framework Directive (MSFD).
- The situation in the Mediterranean Sea.
- The situation in Marine Protected Areas in particular.

Ms Liqueste referred to the-MSFD as a very ambitious and young framing policy, which is proving challenging - yet crucial - to implement, especially given the costs involved in undertaking Ocean research. She recalled that the MSFD is based on 6-year cycle, structured around 3 steps: in 2012 EU Member States (MS) were called to assess the state of their marine environment and come forward with proposals for Good Environmental Status (GES) based on the 11 descriptors introduced by the MSFD and fix targets; in 2014, a monitoring network was set; in 2016, the MS had to report on programs of measures.

The MSFD is now finalizing its first cycle of implementation (2012-2017). During its second cycle (2018-2023), the MS will have to deliver reports providing a socio-economic assessment of their marine areas. In April 2017, a new decision on GES was adopted to address the challenge of a lack of coherence in understanding GES amongst MS, resulting in new criteria that will strengthen coherence in the second cycle. Current efforts are now being focused on implementing these criteria. She referred to the complex nature of the Law and reflected on marine noise and litter as emerging, hot scientific topics, although she acknowledged that there are still important data gaps on other descriptors as well.



Ms Liqueste then referred to the situation in the wider Mediterranean region, pointing out—the **Barcelona Convention** as an important instrument that is contributing to channelling the spirit of EU legislation towards achieving GES at a Mediterranean level through cooperation with non-EU Member States. Ms Liqueste also highlighted the role of **PAs as strategic tools** that can support the achievement of **Good Environmental Status**, not only by contributing to the preservation of biodiversity,

but also by ensuring its sustainable use and productivity. She pointed out that the EU is working towards having a coherent network of MPAs, although additional efforts are required to make progress towards that end.

From a Science-Practice-Policy perspective, Ms Liqueste issued the following recommendations:

- Research has to help institutions and authorities in charge of policy implementation. Whatever scientific project, align your research with the objectives of the MSFD to make your data relevant for policy-making purposes.
- Tackle threshold values for each marine indicator and descriptor: there are huge knowledge gaps (in marine litter, for instance).
- Seek coordination with other ongoing projects. Resulting protocols, tools, etc.,

are not useful for policy makers if they come forward with different, inconsistent or incomparable methods and approaches: coordination is necessary to ensure endorsement and uptake for wider dissemination.

- Member States have ongoing technical groups addressing the different descriptors of the MSFD (i.e. TG ML: Technical group on marine litter). She stressed the importance of coordination with the national authorities representing each Member State in those groups.

After these presentations, a debate was opened and supported by additional contributions of Ms **Silvia Casini** (University of Siena-DSFTA), Mr **Michaël Grelaud** (Universitat Autònoma de Barcelona) and Mr **Ziad Samaha** (IUCN ROWA) and other event participants.

The discussions led to the following **conclusions**:

- **Climate change** is a global threat that is already impacting and negatively affecting local ecosystems. Urgent action is needed on a global scale, but this should not impede local action in support of adaptation. **Protected Areas** can contribute to strengthening **ecological resilience**.
- Likewise, coordinated action is needed to act on **marine litter**. Monitoring protocols are currently being developed, but **integration** would be essential to facilitate their application, transfer and scalability. Best practices in prevention should be extended to Southern and Eastern Mediterranean regions, as action only in the North is not enough to abate the problem on a regional scale. Banning single-use-plastics was highlighted as a direct, effective measure that can contribute to mitigate plastic disposal at its source.
- While a range of monitoring protocols are being developed and could be useful to tackle emerging challenges to biodiversity protection such as climate change and marine litter, it is important to make them **transferable** and **implementable**. **Training** is key to transferability, as well as to effective application and implementation.
- **Nature based solutions** could provide useful management approaches, contributing to enhance overall resilience of ecosystems. Innovative solutions can also open new opportunities for **financing ecosystem protection** and restoration. For example, blue carbon initiatives could offer alternative approaches to habitat protection and restoration, amongst other measures.
- Regionally, the EU MSFD is a new, relatively young platform to address all marine-related issues. Its first cycle has been completed and its second reporting cycle has started, with standard criteria having been developed for

EU Member States to follow. The implementation of the Strategy is challenging, given the breadth and range of issues that the MS have to address, and given the fact that standard criteria are not obligatory for use in the next reporting cycle (2018 – 2023), making comparisons and trend synthesis difficult to develop. Nonetheless, the **need for data** and data harmonisation are important **knowledge gaps** that the MS have to address, which opens opportunities for the capitalization of research projects shedding light on any of the MSFD descriptors.

- The **Barcelona Convention** is the only Mediterranean-wide policy with adequate provision in terms of protocols. However, discussions challenged the notion of whether this policy platform is effective or enough, as a dichotomy seems to be generating between ambitious, regional commitments, on the one hand, and national policy tools that may be too weak on the other, as non-compliance by non-EU countries does not lead to immediate consequences. Along with such dichotomy, serious issues of capacity exist in the south and east Mediterranean that pose a serious impediment to conservation and management measures in Protected Areas.

Ecologically or Biologically Significant Marine Areas (EBSAs) were highlighted as strategic instruments already identified and in place. Additional efforts should be invested in supporting countries and regions to protect these areas with special measures (i.e. “no-take” zones, etc.) in support of biodiversity protection objectives.

- From a **Science-Practice-Policy** perspective, the following recommendations were issued:
 - Decision makers require that research and data consolidate in useful clusters and accessible packages.
 - Coordination amongst research projects is key, as they generate results and tools that need to be consolidated in order to be “digestible”, directly used, and subsequently endorsed by policy-makers.
 - Whereas it is not clear if it is the role of scientists to reach out to decision makers or the role of decision makers to reach out to scientists, a need exists to bridge science and policy. A new role might be emerging similar to that of a “waiter” connecting a restaurant “client” and the kitchen “cook”, to be assumed by “someone” that is capable of identifying relevant science and digest it to create new “products” or a menu of aggregated information easily accessible.
 - No matter how good the intention of an MPA designation or the soundness of scientific research, from a practice perspective, if stakeholder engagement and

sustainable livelihoods are not taken into consideration for adequate MPA management, the MPA will fail in its biodiversity conservation efforts. This is how we build social resilience, as well as ecological resilience to adapt to global change. The engagement of the local communities as well as the development of green entrepreneurship initiatives could offer opportunities to support livelihoods through green and blue economies.



Panel 2: Sustainable use of natural resources in Protected Areas: Artisanal and small-scale fisheries

Giuseppe Sciacca (Executive Secretary of CPMR's Islands Commission), chair of the panel, introduced the dynamics, objectives and participating experts of Panel 2, who were invited to:

- Communicate and share experiences addressing the sustainable use of natural resources in Protected Areas in the Mediterranean, with a special focus on artisanal and small-scale fisheries.
- Highlight effective strategies, mechanisms and best practices currently helping to bridge Science-Practice-Policy gaps when addressing the sustainable use of fisheries in Protected Areas.
- Identify existing, innovative management tools that are helping Mediterranean MPAs to advance towards the sustainable use of fisheries and other natural resources and to reflect on effective ways of taking them from the site level to a regional Mediterranean scale.

Ms Ana Maria Stambuk (University of Zagreb) introduced **Project ConFish**. The overarching goal of **Project ConFish** is to promote knowledge transfer between evolutionary scientists and local fishery stakeholders towards sustainable fisheries

management. Ms Stambuk explained that the project aims to design a Mediterranean-based network that relies on a robust social framework and cutting edge evolutionary science for future implementation of a bottom-up approach of fishery management.

Ms Stambuk highlighted the role of evolutionary based knowledge in fisheries conservation, arguing that the next generation of sequencing will provide information about genetic diversity, stock structure, connectivity of populations and adaptive potential. Within **project ConFish**, local stakeholders are being engaged to promote the exchange of knowledge between fishermen and scientists. Collection and dissemination of knowledge are done through workshops and interviews, which are instrumental in gathering-local knowledge, but also in systematizing-policies and strategic frameworks influencing communities and in defining the sustainability of marine ecosystems, by integrating communities' strategies and scientific results.



Mr Sergi Tudela (**General Director for Fisheries and Maritime Affairs**, Government of Catalonia) presented Catalonia's effort to develop a participatory, multi-stakeholder governance scheme for Ocean related matters, including fisheries. Mr. Tudela highlighted the current critical momentum for fisheries management in the Mediterranean from a policy perspective; as scientific evidence has confirmed the critical status of fishing stocks in the Mediterranean, an urgent need to act has triggered new political processes starting in **Catania** (February 2016) at EU level, followed by the **mid-term strategy** adopted by the **Global Fisheries Commission for the Mediterranean** (GFCM) for 2017-2020, the **Malta "MedFish4Ever" Declaration** (March 30, 2017) and the **Communication on WestMED Initiative** (April 19, 2017). In this context, the Government of Catalonia is investing its efforts on a new regulation of fisheries governance that rests on 4 principles:

- The need to shift away from centralized management.
- The need to tailor management to the scale that matters.
- The notion that empowerment of stakeholders increases buy-in of rules and compliance.

- The underlying idea that co-management works.



The model advocated by the Government of Catalonia focuses on both a **management** and a **governance** approach. From a management perspective, it applies an effort management regime (based on the establishment of total allowable effort and individual allocations of annual fishing days). From a governance perspective, it empowers multi-

stakeholder, co-management committees on a per-management plan basis. Representatives of the fisheries sector, scientific institutions, local administrations and civil society participate in these **co-management committees**, which are sovereign decision-making bodies charged with the design, implementation and adaptive review of management plans. Since 2012, pilot co-management approaches have been applied to 5 fisheries with excellent results, Mr Tudela explained. A new pilot process started last summer to adapt co-management to management of a coastal marine Natura 2000 area (Formigues islands, Girona) involving different uses and stakeholders.

The principle of **co-management** is also underlining a new maritime governance scheme proposed for Catalonia. The Catalan Council for Maritime Co-Management has recently been established to steer its future Maritime Strategy.

Mr Oscar Esparza (WWF Spain) presented **Project FishMPABlue2**. Building on previous results, the Project aims to build a new framework for fishing governance in MPAs, testing a “governance toolkit for small scale fisheries (SSF)” which includes the following key components of innovative SSF management:

- Enforcement of MPA capacities in surveillance and monitoring.
- Integration of fishers in MPA decision-making bodies.
- Engagement of fishers in MPA activities.
- Support to sustainable fishery offer.
- Participatory (i.e. agreed with fishermen) drafting of a SSF management plan.

The Project further aims to disseminate a tested, upgraded toolkit to other Mediterranean MPAs, as well as enhancing integration of nature conservation and fishery management tools in national and international policies, in order to ease both the informal and formal engagement of stakeholders in SSF management within MPAs.

The Project is expected to contribute to reducing the catching pressure on fishing resources (through management measures) and to developing legal, economic and social actions in support of SSF.

Mr Gilles van de Walle (FARNET-The European Fisheries Areas Network) introduced the role of **Fisheries Local Action Groups (FLAGs)** in local resource management. Europe is home to a very diverse family of fisheries communities, some of which are very active and organized and some of which are not at all. In spite of this diversity, fishing communities across Europe share similar challenges, as highlighted by Mr van de Walle:

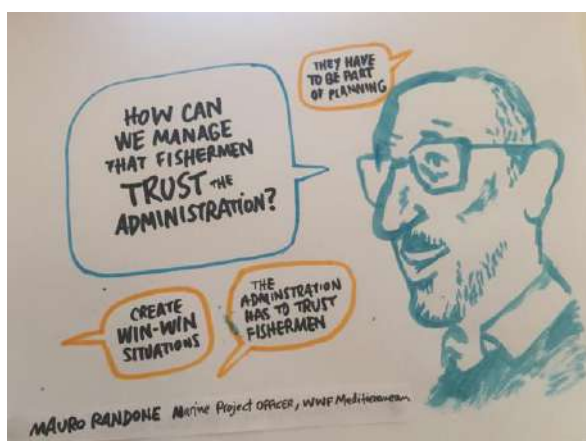
- Status of stocks.
- Sustainability of practices.
- Access to fishing opportunities.
- Competitiveness (especially for small scale).
- User conflicts:
 - Competing use of the space (sailing, dredging, renewables, aquaculture, etc.).
 - Competing use of the resource (recreational fishermen, IUU, wildlife, etc.).
- Lack of agency or capacity to act.

A total of 360 FLAGs with an overall budget of €2 million are currently bringing together local fishing communities and supporting the sector to play an active role in local governance issues:

- Supporting involvement of fishermen in:
 - MPA design.
 - MPA management (monitoring and control, licensing...).
 - Supporting fishermen to get involved in co-management (MPAs, local management plans) and giving them capacity to act.
- Participating in catch data monitoring and reporting.

- Testing sustainable fishing gear at local level and mainstreaming it as main gear to be used.
- Supporting traceability schemes.
- Development of complementary activities for fishermen (pesca-tourism, services to recreational use of MPAs, such as diving).

Mr van de Walle presented different best practices led-by local FLAGs (in Galicia, Spain; in Algarve, Portugal; amongst others) that show that engagement of local fishermen in the management of natural parks is providing positive results both from a socio-economic (increase of income) and environmental, resource related perspective (reduction of fishing efforts). FLAGs, he argued, are well positioned to support co-management schemes, although more time is required for most FLAGs to really settle and start generating progress.



After these presentations, a debate was opened—and supported by additional contributions of Mr **Mauro Randone** (WWF Mediterranean), Ms **Alicia Sánchez** (SARGA, Government of Aragón) and other event participants. The discussions led to the following **conclusions**:

- We are indeed going through a **crucial phase** in the **Mediterranean**, with the Catania process having started—around two years ago, the signature of the Valletta declaration and the endorsement of the MEDfish4ever initiative. The sustainable use of the natural resources of the Mediterranean is at the core of the political and technical debate at a European and Mediterranean level.
- In this context, **MPAs** already play and must continue to play a key role in **sustainable resource management**. MPAs must continue to contribute to the recovery of fish stocks through the establishment of new and larger “no take zones”.

- New, more **harmonized** and **exhaustive** sets of **science-based data** are required to support action at European, national and local levels. New scientific knowledge is proving crucial to tackle species conservation and address connectivity, such as the one provided by evolutionary genomics.
- While scientific evidence is required, empiric (traditional) knowledge stemming from fishermen and local stakeholders will continue to play a key role in the sustainable use of fisheries.
- **Co-management** is an opportunity to steer multi-stakeholder, local action:
 - Shifting towards co-responsibility and a more decentralized management.
 - Tailoring management to the scale that matters.
 - Empowering stakeholders in support of compliance.
 - Co-management cannot be replicated, but needs to be adapted to local circumstances.

The MPAs are playing a key role in providing an interface with fisheries, supporting and promoting co-management initiatives in collaboration with representative of the fishing sector, and especially with representatives of Small Scale Fisheries.

- **FLAGS** can play a key role in promoting effective participation of fishermen and addressing the “lack of agency”.
- Additional efforts are required to build up a participatory, multi-stakeholder governance that brings together scientific evidence, traditional knowledge and needs of fishing communities, policy makers and civil society to ensure the sustainable use of natural resources in the Mediterranean and, above all in the PAs.

Panel 3: Integrated ecosystem monitoring and management: Addressing key challenges for the Mediterranean

Mr Sylvain Petit (Programme Officer at UN Environment MAP PAP/RAC) was charged with the task of chairing the last of these expert panels. At its outset, Mr Petit introduced the dynamics, objectives and participating experts of **Panel 3**, who sought to:

- Reflect on **Mediterranean** and **EU policies and legal frameworks** fostering integrated ecosystem monitoring and management towards reaching the

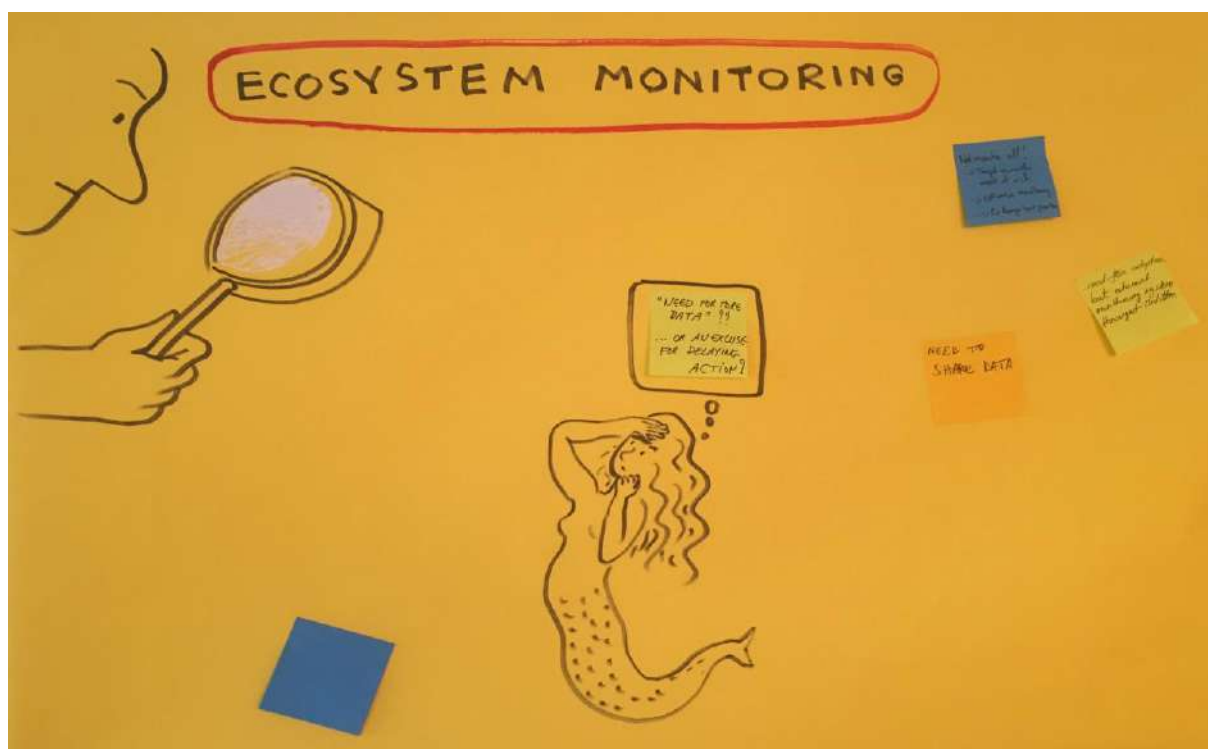
goal of Good Environmental Status (GES) in Mediterranean coastal and marine areas.

- Discuss key **challenges** and current **data availability and gaps** regarding the monitoring of ecosystems and the underpinning biodiversity in the **European Union** and in the larger **Mediterranean** basin.
- Highlight effective strategies, mechanisms and best practices to bridge Science-Practice-Policy gaps in integrated ecosystem monitoring and management of coastal and marine areas.

In order to contextualize the above objectives, Mr Petit introduced the background and strategic lines of action of the **Barcelona Convention** (its Action Plans, Regional Frameworks and Protocols), as well as the Ecosystem Approach (EcAp), as the guiding principle of the Convention's Mediterranean Action Plan (MAP) and its Programme of Work to achieve the GES in the Mediterranean Sea and Coast. The Convention's **Integrated Monitoring and Assessment Programme (IMAP)**, he explained, is the main tool framing action-to determine GES targets and to prepare in-depth socio-economic analyses of human activities that currently impact and/or benefit from the quality and the ecological health of coastal and marine ecosystems in the Mediterranean. Mr Petit pointed out the similarities between IMAP's and the EU MSFD's requirements, although he highlighted the fact that IMAP calls for the consideration of the land parts of coastal areas, with particular attention to **Land-Sea interactions**.

Mr Petit further addressed the **EcAp-MED I** and **EcAp-MED II** projects, the Convention's **Marine Strategy for Sustainable Development (MSSD)** and the **Union for the Mediterranean's Horizon 2020 Initiative** for a cleaner **Mediterranean** as the key actions being undertaken to achieve GES, guide the implementation of the **UN Agenda for Sustainable Development** at the regional, sub-regional and national levels and to de-pollute the Mediterranean by the year 2020, respectively.

He then explained the role of the **UN PAP/RAC** in assisting the implementation of the Hydrography (EO) indicators, and specifically indicators EO7 ("location and extent of the habitats impacted directly by hydrographical alterations"), EO8 ("length of coastline subject to physical disturbance due to the influence of manmade structures") and EO8 candidate common indicator on Coast ("land-use change").



Special mention was given to the **Land Sea Forum**, which is facilitated and supported by PAP/RAC and is intended to serve as a dialogue interface to support the emergence of a land-sea community based on the Integrated Coastal Zone Management (ICZM) principles. Land-Sea interactions are currently being addressed as a “bridge” that can contribute to build coherence between marine and terrestrial planning, linking two key frameworks: the **Common Regional Framework on ICZM in the Mediterranean** and the upcoming, **Conceptual Framework for Marine Spatial Planning (MSP)**.

Mr Antoine Lafitte (Plan Bleu) continued by reflecting on the EU’s **Marine Strategy Framework Directive** and its link to the **Regional Sea Conventions** (OSPAR, HELCOM, Barcelona and Bucharest conventions). He started by providing some additional insight into the way that the **Barcelona Convention** addresses the Ecosystem Approach, versus the **MSFD**:

- Follows a similar approach.
- Applies to all Mediterranean countries (including non-EU Member States).
- Has adopted an Ecological Objective on coastal ecosystems and landscapes, which is not covered by the MSFD.
- Applies to the entire marine and coastal environment, including high seas.
- Has a more flexible timeline.

He then looked deeper into the Convention's underlying **Ecosystem Approach**, introducing the 7 steps that its Roadmap is proposing to undertake:

1. Definition of an **Ecological Vision** for the **Mediterranean**.
2. Setting of common **Mediterranean strategic goals**.
3. Identification of important ecosystem properties and **assessment of ecological status and pressures**.
4. Development of a set of **ecological objectives** (EOs) corresponding to the vision and strategic goals.
5. Derivation of **operational objectives** with **indicators** and **target** levels.
6. Revision of existing monitoring programmes for ongoing assessment and **regular updating of targets**.
7. Development and review of relevant **action plans** and **programmes**.

Mr Lafitte pointed out the next steps of IMAP, highlighting some of the outstanding challenges that research projects might help to address:

- Finalize gap analysis of programmes of measures adopted under the **Barcelona Convention** and its Protocols to assess the need for new or updated ones to achieve GES.
- In collaboration with regional Partners, define an efficient governance mechanism to support a coordinated implementation of IMAP by all Mediterranean countries, including financial support.
- Support and coordinate research work in support of the implementation of IMAP and its programmes of measures with relevant partners and research projects.
- Establish an efficient information system to collect and process data coming from IMAP implementation based on SEIS principles.
- Focus on strengthening **Science-Policy interfaces** for EcAp implementation: in order to progress and implement the IMAP on a regional basis, it is an absolute necessity to ensure links with various other ongoing monitoring frames and projects (e.g. EU initiatives). A Science-Policy interface is key to ensuring—that the outcomes of scientific projects are reflected in EcAp monitoring plans:
 - Ensure that scientific research projects will address monitoring challenges in the region and can be effectively channelled into the policy discussions taking place under the Barcelona Convention.
 - Highlight key policy challenges in relation to monitoring, where scientific input is necessary.
 - Make the scientific community more aware of policy needs and challenges (more action-oriented).

Ms Simona Simoncelli introduced the **European Marine Observation and Data Network (EMODnet)**, a network of more than 150 organisations supported by the EU's integrated maritime policy. These organisations work together to observe the sea, process the data according to international standards and make that information freely available as interoperable data layers and data products. This "collect once and use many times" philosophy benefits all marine data users, including policy makers, scientists, private industry and the public. EMODnet provides access to European marine data across seven discipline-based themes:

- Bathymetry.
- Geology.
- Seabed habitats.
- Chemistry.
- Biology.
- Physics.
- Human activities.

For each of these themes, EMODnet has created a gateway to a range of data archives managed by local, national, regional and international organisations. Through these gateways, users have access to standardized observations, data quality indicators and processed data products, such as basin-scale maps. These data products are free to access and use.

EMODnet Sea Basin Checkpoints assess the quality of the current observation monitoring data at the level of the regional sea basins. By testing the data against specific end-user challenges, the checkpoints seek to demonstrate how well the current monitoring systems and data collection frameworks provide data to meet the needs of users. EMODnet's **Mediterranean checkpoint** has developed a metadata base containing **266 Input Dataset** descriptors, which identify and assess potentially usable information for the construction of data products.

So far, **45 Targeted Products (TP)** have been generated following the customer requests. However, only **90 over the 266** input datasets have been used for the realization of the targeted products (Upstream Data), which have been used to assess **data availability** and **appropriateness**. Following a continuous effort of data analysis, two Data Adequacy Reports have been produced and the following **monitoring gaps** identified:

1. **Sediment mass balance:** Targeted products could not be realized, data only available in literature, none INSPIRE catalogue exists containing data collected within the EU-funded projects.

2. **Fishery management** (fish catch/by-catch): data availability was found to be totally inadequate and failed to cover the targeted products requirements due to horizontal/temporal coverage and temporal validity (scarcity of data collected in 2 years of search, absence of data from non-EU countries, lack of data before 2002, not updated frequently, available after 1-2 years from monitoring, lack of standardization).
3. **Habitat extent** (*Posidonia oceanica*, Coralligenous, Maerl and seabed sensitive habitats): data availability was found to be totally inadequate (data policy, responsiveness) and failed to meet the scope of targeted products due to their inadequate vertical/horizontal coverage, temporal/horizontal resolution.
4. **Wave height, period, direction and spectral parameters**: data availability was found to be totally inadequate and to not fully meet the scope of targeted products in terms of temporal coverage, horizontal/temporal resolution.
5. **Maritime traffic** (platform movement): data availability was found to be totally inadequate due to the difficulty of obtaining data from competent authorities, they have to be purchased from private providers; access to raw data extremely difficult due to confidentiality concerns related to the EU laws on privacy. They fail to meet the scope of targeted products in terms of horizontal/temporal coverage, temporal validity (VMS) system was implemented in the EU Med countries in different years, while the fishing fleets of most Med countries have only recently adopted the AIS system and it still has to be implemented by most non-Mediterranean EU vessels. Limited geographical coverage is also related to the limited range of VHF signals and management of the system by the vessel crew.

Based on this assessment, **EMODnet** has issued a number of recommendations to the European Commission, including a proposal to connect EMODnet Portals to the EU-funded projects to act as a repository of all data collected and produced by the **Horizon 2020** programme of the EC and future research programs.

Ms Simona Frascchetti (Università del Salento) presented **Project AMAre**, which is seeking to scale up strategies and recommendations at transnational level adopting an ecosystem-based approach to **Maritime Spatial Planning (MSP)**, considering the goals of the EU Marine Strategy Framework Directive across MPAs. Ms Frascchetti reflected on the fact that in the Mediterranean Sea, the intensive use of maritime space calls for integrated management to avoid cumulative impacts and user conflicts. MSP – the harmonization of human activities in marine areas - is advocated as a powerful approach to reach these goals. However, most Mediterranean countries have not yet gone through this process.

She argued that the protection of the Mediterranean Sea is substantially impaired by a lack of shared vision about management, monitoring and mitigation of threats within and outside MPAs. The lack of concrete application of MSP, even at small scale, seems to be limiting the potential to solve hotspots of conflicts, with consequent effects on marine biodiversity and the services it provides. Project AMAre seeks to contribute to reverse this trend, by:

- Developing shared methodologies and geospatial tools for multiple stressors assessment, coordinated environmental monitoring, multi-criteria analyses and stakeholders' engagement.
- Translating these guidelines into concrete pilot actions and coordinated strategies in selected Marine Protected Areas (MPAs) to solve hotspots of conflicts affecting marine biodiversity and the services it provides.
- Fostering transnational cooperation, development of coordinated best practices to deal with present and future drivers of changes in biodiversity and ecosystem services, coordinated monitoring, data access to share information and concrete stakeholder's and user's involvement are the expected results.

Ms Frascchetti highlighted that MPA managers, public institutions, and key stakeholders working within the MPAs will benefit from the results of the project, although some outstanding challenges are-as yet to be addressed, mainly related to:

- **Data:** Chronic absence of biological/environmental data that are of critical importance for setting the stage to improve the governance, management and monitoring. Data modellers have been solicited to find more sources to fill this gap.
- **Communication amongst Project Partners:** Strengthening the interactions and the communications amongst the partners in the project remains a challenge. MPA Managers should make an effort to interact more by sharing data, experiences and vision. Likewise, communication with other Projects should be encouraged and pursued.

Mr Daniel Palacios (Area Metropolitana de Barcelona – AMB) introduced AMB's **Hybrid Dunes Project**. Through collaboration with administrations and stakeholders, the Hybrid Dunes Project aimed to learn to construct and maintain semi-fixed dunes on heavily used urban beaches to optimize the flow of ecosystem services. Dunes play a central role in coastal defence and protection against the sea-level rise, linked to climatic change. The Project has been instrumental in demonstrating—that it is possible to construct and maintain semi-stabilized urban dunes. In the Barcelona metropolitan area, the role of dunes as barriers against the sea level rise has proved to be less relevant than that of preserving the entire beach system. Moreover, the

project has come to demonstrate the high diversity of social stakeholders that converge on urban and peri-urban areas. Mr. Palacios highlighted what he considered to be the critical success factors that have allowed the project to deliver positive results, namely:

- The involvement of administrations and efforts to win local media interest.
- Using cost-benefit analysis and economic valuation as clear determinants.
- The fact that dunes are an issue of interest for schools and for citizen science.

He further argued that the “ecosystem services” concept is highly contested (especially on urban natural areas). The dominant view is that the 'public administration is tightly controlled by the green lobby' (who are against the participation of private economic activities on urban ecosystem management). This view seems to be blocking adaptive management strategies based on robust science and limits new income sources. A broader methodological perspective of ecosystem services is needed. The following lessons learned were highlighted:

- It is much easier to engage the general public with the “no dunes, no beach” argument than with the “biodiversity interest” of pioneer dunes.
- The need for social stakeholder mapping to cope with trade-offs (such as unleashed dog-walking and excrement abandonment).
- The need to discover new ways to remove environmental dogmas and correctness, and promote dunes as interesting environments.
- The need to show the economic efficiency and profits of dune management; which could further convince citizens to avoid engaging in conflicting uses of the beach.

After these presentations, a debate was opened—and supported by additional contributions of Mr **Emiliano Ramieri** (Thetis - EU MSP Platform), Mr **Hugues Heurtefeux** (EID Méditerranée; Project POSBEMED), Mr **Christian Perennou** (Tour du Valat) and other event participants. The discussions led to the following **conclusions**:

- Achieving **Good Environmental Status** in the Mediterranean requires being able to successfully measure human impact on both **Land** and **Sea**. Additional work is required to improve current policy and legal frameworks to address this need.
- The **Barcelona Convention** is a key instrument to strengthen cooperation in the Mediterranean and it should continue to seek strong cooperation and alignment with EU policies. Integrated Coastal and Marine Zone Monitoring

and Management have proved to be very useful approaches, but increasing coherence between scales and disciplines is required to address **Land-Sea interactions**.

- The projects of the **Interreg Med Community** focusing on **Biodiversity Protection** can play a key role in supporting the practical application of **ICZM** and in bringing relevant information and scientific recommendations to decision makers.
- We need to be able to continuously question our work, keep an open perspective and **welcome new actors** to the table (for example, social scientists, who seem to be absent from most discussions on biodiversity protection, while experience shows the importance of adequately dealing with social perceptions when implementing solutions). The **MED Biodiversity Community** might have a role to play in ensuring a fair representation of all relevant disciplines when addressing Science-Practice-Policy gaps.
- In spite of progress in data gathering, significant data gaps and difficulties in meaningful harmonisation of multi-sources data in the marine environment still exist. EMODnet's assessment of the Mediterranean identifies **specific data gaps** (i.e. in fishery management and habitat extent) that need to be prioritized and addressed. Land-sea interactions also need to be better monitored and understood in a holistic approach.
- We need to take action to build **synergies** amongst current data gathering efforts. Thematic biodiversity protection projects, PANACeA and EMODnet could bring forward practical examples of how to make an efficient use of EU funding through effective **collaboration in data gathering and sharing**.
- The Mediterranean Sea is well studied, but is it well known? Significant progress has been achieved, but additional, cooperative efforts are required to sustain progress and make it relevant for biodiversity conservation.

At the conclusion of panel 3, its Chair invited the Chairs of panels 1 and 2 to join him on-the stage to wrap up the event by **highlighting the key messages** stemming from each of the three thematic panels.

Field visit

Upon closure of the meeting, a field visit was organized to generate additional networking opportunities for all participants, while connecting the discussions held during the event with an example of a real effort in **Integrated Ecosystem Management** which addresses land-sea interactions.

The field visit, [which was attended by roughly 20 participants](#), had two different components:

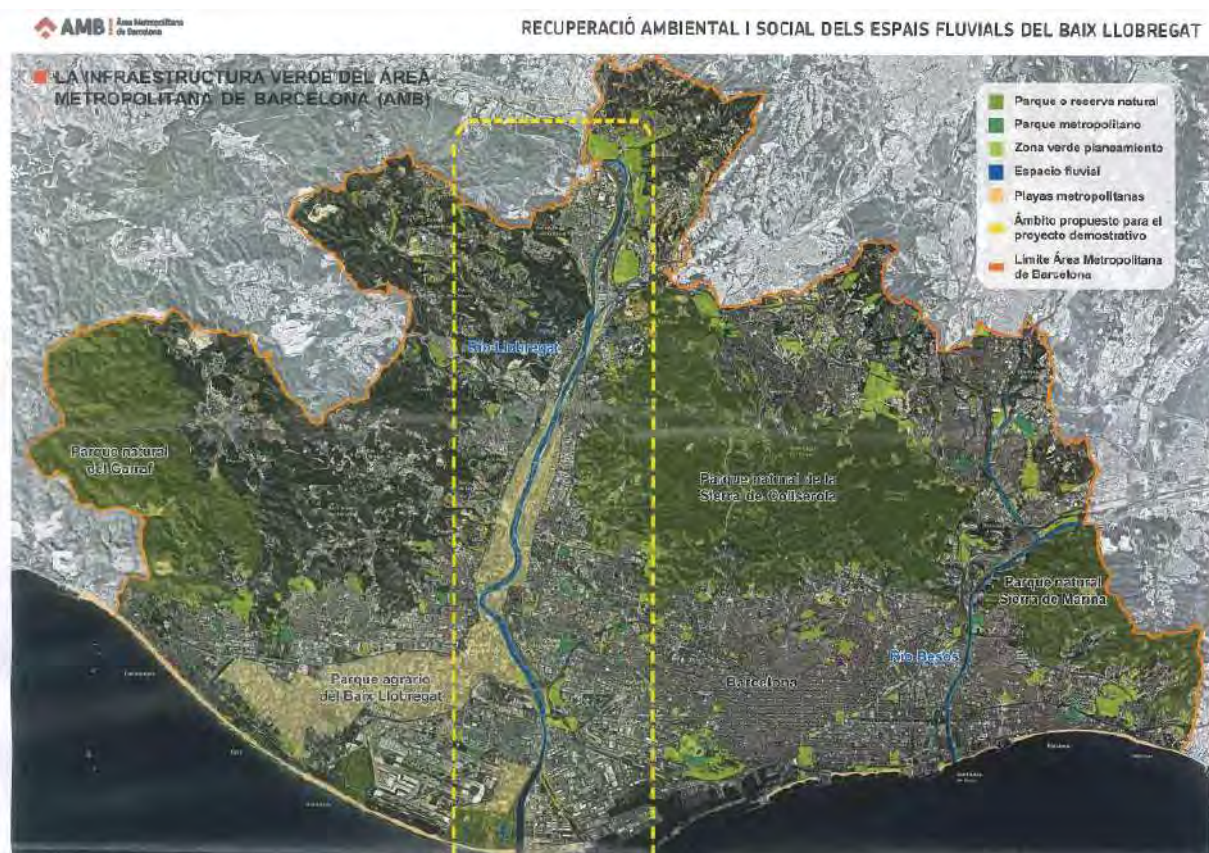
- A visit to the fluvial areas of the **Llobregat Delta**, as an example of the environmental and “social” rehabilitation of a natural area.
- A visit to the **Hybrid Dunes of Gavà’s** coastline, as an example of metropolitan coastal management in a scenario of climate change.

A guided bike tour was done in the fluvial areas of the **Llobregat Delta** in the proximity of **Barcelona**, which gave participants an understanding of a long-term intervention seeking the environmental and social rehabilitation of a green area which suffered from big infrastructure interventions, as well as severe pollution. Experts from the **Metropolitan Area of Barcelona** presented the rehabilitation works undertaken, with emphasis on:

- Nature based solutions implemented in the area.
- Re-naturalisation of the river stream.
- Water cycle management activities for the recuperation of the river aquifer and the creation of saline intrusion barriers.
- Protection measures for the agricultural production in the area.
- Ecosystem services: intervention for promoting the connectivity with surrounding areas for leisure and social use.
- Recovery of Mediterranean landscape.

After the completion of the tour, participants visited the metropolitan coastline of **Barcelona** around the municipality of **Gavà**, where they were presented with the interventions for the construction and maintenance of semi-stabilized dune ecosystems on heavily used urban beaches. Some of the major problems of the metropolitan coastline were introduced: erosion and urbanisation processes; sea level rise due to climate change; sediment accumulation problems in the area; and the creation of dune vegetation solutions to consolidate the sediments.

The guiding expert from the Metropolitan Area of Barcelona explained how the project mobilised key stakeholders to create awareness amongst the general public on the importance of dunes - with a “no dunes, no beach” argument – which has contributed to shaping a social attitude of acceptance towards making the year-round intensive recreational use of beaches compatible with the protection of the dunes.



Map of the area where the Field Visit took place

[Click here to see photos of the Field Visit and its activities](#)

Recommendations

The initiatives presented, reflections contributed and discussions held during the **Knowledge Sharing Event** amongst all participants, and their associated conclusions, lead to the following recommendations for “**Bridging the Science-Practice-Policy gaps in biodiversity protection in the Mediterranean**”:

- **Protected Areas** are **strategic tools** that can contribute to increase the resilience of local ecosystems against the impact of global environmental challenges, acting as living laboratories providing grounds to test and demonstrate the effectiveness of management and conservation efforts. To ensure that **MPAs** in the **Mediterranean** play such a role, efforts to build a coherent network and to enhance their effective management need to be supported and sustained. **Representativeness, connectivity, adequacy and replicability** are key success factors to consider and address. **Scientific evidence, stakeholder engagement, participatory decision-making and co-responsibility** could be summed up to be the key words that resonated loudly as the principles that should guide any actions geared at bridging Science-Practice-Policy gaps in support of biodiversity protection in the Mediterranean.
- Fostering **networking, knowledge sharing and capacity building** amongst stakeholders is a necessary condition to shape and disseminate better, science-based management practices in support of biodiversity conservation. **Bridging Science-Practice-Policy gaps** therefore requires a sustained effort to **facilitate networking, knowledge sharing and capacity-building** initiatives and to develop a common language and understanding amongst stakeholders.
- Scientific evidence is not always immediately accessible or evident to conservation practitioners and/or policy makers. Likewise, management challenges and policy gaps are not always evident to scientists. While scientific efforts are being invested in generating knowledge and tools to address conservation challenges, the final users of such tools are not in a position to assess their relevance and applicability, faced as they are with multiple scientific proposals and outcomes, which are often difficult to compare or conciliate. **Bridging Science-Practice-Policy gaps** therefore requires the availability of **clearing mechanisms** that are able to assign relevance, build synergies, integrate methodologies and channel results of scientific research to practitioners and policy makers. **PANACeA** could serve as an example of the structure and working methodology of such a clearing mechanism, and also

provide practical guidance to consider when addressing the integration of management and/or monitoring protocols (i.e. on marine litter or on climate change vulnerability assessments).

- Achieving **Good Environmental Status** of the Mediterranean Sea is key to ensure biodiversity protection in the Mediterranean basin. In order to work towards this goal, improved coordination and cooperation is required at all levels: amongst existing scientific institutions and initiatives, amongst PA management bodies, amongst stakeholders and amongst policy efforts in northern, southern and eastern Mediterranean regions and countries. While existing, institutional and policy frameworks can support top-down action in support of biodiversity conservation, bottom-up approaches are required to bring all relevant actors together at a relevant scale. **Co-management** is a powerful tool that can contribute to bridge **Science-Practice-Policy gaps** by aligning action of scientists, practitioners, users and policy makers at such scale, fostering long-term, multi-stakeholder collaboration and the effective implementation of win-win solutions.
- Sound biodiversity management and policies need to be guided by sound scientific evidence. Effective data generation, collection, harmonisation to answer regional challenges/ management efforts & policy mechanisms, as well as data sharing, are key for this purpose. Although significant progress has been achieved on land, significant data gaps are still preventing the definition and implementation of effective measures in support of biodiversity protection at sea (for example, around the descriptors of the EU MSFD or around **land-sea interactions**). **Filling those data gaps** could be a significant contribution of any ongoing, scientific research efforts and a direct capitalization gain stemming from them, by linking their research components to specific data needs. Bridging **Science-Practice-Policy gaps** requires a clear vision on current data needs, the prioritization of policy and management frameworks that could benefit from filling those needs and the definition of concrete, coordination actions amongst research projects and initiatives to address them. Coordinated compilation of data generated through ongoing scientific efforts (for example, through PANACeA's Interreg Med "**Biodiversity Protection Knowledge Platform**") and effective collaboration with existing data aggregation initiatives (i.e. MAPAMED, the Biodiversity Protection Platform of RAC/SPA, EMODnet, etc.) should be encouraged and pursued.
- These **recommendations** will be taken into consideration and built into the upcoming **Action Plan 2017-2019** that will guide the work of the **MED Biodiversity Protection Community** through its first period of development.

- PANACeA's upcoming **Knowledge Sharing & Community Building event in Montenegro** (May 2018) will build on these conclusions and recommendations to further guide and advance the joint efforts of the **Community**, in support of biodiversity conservation in the **Mediterranean**. Scientists, practitioners and policy makers involved in biodiversity monitoring, management and conservation are invited to participate in this meeting.

About the PANACeA Project

Streamlining management efforts in Protected Areas for enhanced nature conservation and protection in the Mediterranean Sea

PANACeA is an INTERREG MED initiative co-financed by the European Regional Development Fund running between 2016 and 2019 that aims at streamlining management efforts in Protected Areas for enhanced nature conservation and protection in the **Mediterranean Sea**. The Project is led by the **European Topic Centre of the University of Malaga (ETC-UMA)** in partnership with the Conference of Peripheral Maritime Regions (CPMR), MedCities, UNEP MAP Plan Bleu, UNIMED, and the Regional Environmental Centre (REC) of Montenegro.

The project aims at ensuring synergies between relevant Mediterranean stakeholders – managers, policymakers, socio-economic actors, civil society and the scientific community –, and to increase the visibility and impacts of their projects' results towards common identified strategical targets.

PANACeA acts as a Science-Policy-Interface (SPI) to foster the exchange of experiences and knowledge sharing and thus, to influence a behavioural and policy change in the Mediterranean region.

The main objectives of the project are:

- Synthesizing outcomes on natural protection and biodiversity conservation efforts;
- Engaging a stakeholders' community and transferring knowledge beyond the project's lifetime;
- Implementing a communication and dissemination strategy;
- Developing a long term capitalization tool ensuring evidence based policy enforcement

PANACeA Associated partners are:

- Adriatic Ionian Euroregion (AIE)
- Association of Mediterranean Maritime Museums (AMMM)
- European Fisheries Areas Network (FARNET)
- FAO General Fisheries Commission for the Mediterranean (GFCM)
- Holy Spirit University of Kaslik (USEK)
- IUCN Centre for Mediterranean Cooperation
- IUCN World Commission on Protected Areas (IUCN-WCPA)
- Mediterranean Protected Areas Network (MedPAN)
- MPA Island of Ustica
- NGO OZON
- Provence-Alpes-Côte d'Azur Region (PACA)
- Region of Crete
- Tour du Valat Foundation
- UNEP MAP Priority Actions Programme/Regional Activity Centre (PAP/RAC)
- UNEP MAP Regional Activity Centre for Specially Protected Areas (RAC/SPA)
- WWF Mediterranean

PANACeA has led to the articulation of an **Interreg Med Community** focusing on **Biodiversity Protection** (the “**MED Biodiversity Protection Community**” or “**Biodiversity Protection Community**”), which brings together a comprehensive network of experts from public & private institutions actively working to protect biodiversity and natural ecosystems in **Mediterranean Protected Areas**.

The Med Biodiversity Protection Community

The MED Biodiversity Protection Community, featured by PANACeA, brings together a comprehensive network of experts from public and private institutions actively working to protect biodiversity and natural ecosystems in Mediterranean Protected Areas. Filling the current gap between Science, Management and Policy is one of the priority targets of the Community.

The MED Biodiversity Protection Community seeks to identify and generate synergies amongst the work of relevant Mediterranean stakeholders, including Protected Area managers, policy-makers, socio-economic actors, civil society and the scientific community. The initiative undertakes actions to increase the visibility and impacts of the results of different Modular Projects (MPs) that are being undertaken by members of its Community, also with the financial support of the Interreg MED Programme, reaching a common and pre-identified strategic target audience.

Several policy aspects are addressed under the umbrella of these Modular Projects, covering biodiversity protection, sustainable use of natural resources, ecosystem-based management approaches - including Maritime Spatial Planning (MSP) and Integrated Coastal Zone Management (ICZM) - as well as governance mechanisms. The Community is working to advance more effective biodiversity protection in the Mediterranean through enhanced monitoring and management of coastal and marine ecosystems, specifically targeting more sustainable fisheries, better adaptation to climate change effects, better prevention of marine litter and improved waste management.

The following **Modular Projects** are currently part of the **MED Biodiversity Protection Community**:

- ACT4Litter: Joint measures to preserve natural ecosystems from marine litter in Mediterranean Marine Protected Areas (MPAs).
- AMAre: Development of shared methodologies and special tools to foster the resilience of a Mediterranean MPA network as well as concrete MSP applications.
- ConFish: Connectivity amongst Mediterranean fishery stakeholders and scientists to resolve connectivity of fishery populations.
- EcoSUSTAIN: Improved management and networking of Protected Areas by building capacity and testing innovative water monitoring solutions.
- MEDSEALITTER: Developing Mediterranean-specific protocols to protect biodiversity from litter impact at basin and local MPA levels.
- MPA-ADAPT: Guiding Mediterranean MPAs through the climate change era: Building resilience and adaptation.
- POSBEMED: Sustainable management of the systems Posidonia-beaches in the Mediterranean region.
- WETNET: Coordinated management and networking of Mediterranean wetlands.

PANACeA supports the **MED Biodiversity Protection Community** by:

- Offering support as well as communication and capitalisation opportunities to the modular projects (MPs)
- Seeking interconnectivity amongst projects and MPAs and offering networking opportunities.
- Helping MPs achieve their results by creating opportunities of exchange and

transfer of methodologies, tools, practices and knowledge.

- Ensuring adequate deployment of the activities, services, and tools it develops by involving its Advisory Board throughout the project lifetime.
- Mobilizing experts from outside the **Interreg MED Programme** whose work focuses on biodiversity protection, in order to make possible communication with a wider community of experts and a broader dissemination of the Community's results.
- Build upon the MPs needs for the creation of a unique and adapted tool, the Interreg MED "[Biodiversity Protection Knowledge Platform](#)" (BPKP), as both a community building and a long-term capitalisation tool that allows a one entry point access to all the knowledge generated by the Biodiversity Protection Community.

The community's **Knowledge Sharing & Community Building** meetings are amongst the key tools that have been devised to achieve the above-mentioned objectives. "**Knowledge Sharing**" events seek to share information and advanced knowledge on relevant topics amongst Community members, also engaging stakeholders and experts outside the Community.

Annexes

- [FULL MEETING AGENDA AND PRESENTATIONS](#)
- [SUMMARY OF CONCLUSIONS BY THE PANELS' CHAIRS \(LIVE VIDEO\)](#)
- [PHOTO GALLERY](#)
- [LIVE DRAWINGS BY YORGOS KONSTANTINO](#)
- [TWITTER LIVE FEED: #MEDBIODIVERSITY_BCN2017](#)

List of participants

Participant Name	Institution
Alejandro González Domingo	Eco-Union
Aleksandar Perovic	Environmental Movement OZON
Aleksandra Ivanovic	Public Enterprise For Coastal Zone Management
Alessandra Caprini	Aspesia SI
Alicia Sanchez-Valverde Moreno	Sarga-Sociedad Aragonesa de Gestión Agroambiental
Alyssa Clavreul	UNEP-MAP Plan Bleu
Ameer A. Abdulla	IUCN WCPA - World Commission on Protected Areas
Ana Isabel Colmenero Ginés	Institut de Ciències Del Mar (ICM-CSIC)
Ana Maria Stambuk	University Of Zagreb
Andrea Musicó	Anteria Srl
Andreas Karakatsanis	Municipality Of Larnaka
Anna Marín Puig	UAB
Anna Martinez Codina	Diputació De Barcelona
Antoine Laffitte	UNEP MAP Plan Bleu
Antoni Farrero	Area Metropolitana De Barcelona
Antoni Garcia Rubies	Centre D'estudis Avançats de Blanes (CEAB-CSIC)
Antoni M. Grau	Direcció General De Pesca I Medi Marí. Govern de Les Illes Balears
Bet Marrugat	Area Metropolitana de Barcelona
Camino Liqueste	DG Environment, European Commission
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Recommendations for bridging the Science-Practice-Policy Gap in biodiversity protection in the Mediterranean

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